AGENDA
WATER ISSUES COMMITTEE MEETING
WITH BOARD OF DIRECTORS *
ORANGE COUNTY WATER DISTRICT
18700 Ward Street, Fountain Valley, CA 92708
Wednesday, September 11, 2024 12:00 p.m., Boardroom

*The OCWD Water Issues Committee meeting is noticed as a joint meeting with the Board of Directors for the purpose of strict compliance with the Brown Act and it provides an opportunity for all Directors to hear presentations and participate in discussions. Directors receive no additional compensation or stipend as a result of simultaneously convening this meeting. Items recommended for approval at this meeting will be placed on the **September 18** Board meeting Agenda for approval.

This meeting will be held in person. As a convenience for the public, the meeting may also be accessed by Zoom Webinar and will be available by either computer or telephone audio as indicated below. Because this is an in-person meeting and the Zoom component is not required, but rather is being offered as a convenience, if there are any technical issues during the meeting, this meeting will continue and will not be suspended.

Computer Audio: Join the Zoom Webinar by clicking on the following link:
https://ocwd.zoom.us/j/98592928069

Webinar ID: 985 9292 8069

Telephone Audio: (213) 338 8477

Teleconference Sites:
10382 Bonnie Drive, Garden Grove
20 Civic Center, Santa Ana
1502 North Broadway, Santa Ana
1454 Madison Street, Tustin
100 S Main Street, Los Angeles
* Members of the public may attend and participate at all locations.

PLEDGE OF ALLEGIANCE

ROLL CALL

ITEMS RECEIVED TOO LATE TO BE AGENDIZED

RECOMMENDATION: Adopt resolution determining need to take immediate action on item(s) and that the need for action came to the attention of the District subsequent to the posting of the Agenda (requires two-thirds vote of the Board members present, or, if less than two-thirds of the members are present, a unanimous vote of those members present.)

VISITOR PARTICIPATION

Time has been reserved at this point in the agenda for persons wishing to comment for up to three minutes to the Board of Directors on any item that is not listed on the agenda, but within the subject matter jurisdiction of the District. By law, the Board of Directors is prohibited from taking action on such public comments. As appropriate, matters raised in these public comments will be referred to District staff or placed on the agenda of an upcoming Board meeting.
At this time, members of the public may also offer public comment for up to three minutes on any item on the Consent Calendar. While members of the public may not remove an item from the Consent Calendar for separate discussion, a Director may do so at the request of a member of the public.

CONSENT CALENDAR (ITEMS NO. 1 – 5)

All matters on the Consent Calendar are to be approved by one motion, without separate discussion on these items, unless a Board member or District staff request that specific items be removed from the Consent Calendar for separate consideration.

1. MINUTES OF WATER ISSUES COMMITTEE MEETING HELD AUGUST 14, 2024

   RECOMMENDATION: Approve minutes as presented

2. REPLACEMENT OF WATER QUALITY WESTBAY VEHICLE T-97

   RECOMMENDATION: Agendize for September 18 Board Meeting: Authorize issuance of Purchase Order to LDV Custom Specialty Vehicles for $347,546.00 (not including tax) for purchase and delivery of Mobile Water Sampling Lab Vehicle and authorize the payment of $30,002 use tax for this vehicle purchase to the California Department of Tax and Fee Administration

3. CONTRACT NO. FUL-2022-1 AUTHORIZE NOTICE OF COMPLETION, RATIFY CHANGE ORDERS, AUTHORIZE BUDGET INCREASE, AND AUTHORIZE TRANSFER

   RECOMMENDATION: Agendize for September 18 Board meeting:

   1. Ratify issuance of Change Order Nos. 1 – 11 to Pacific Hydrotech for a total amount of $348,168;

   2. Accept completion of work and authorize filing a Notice of Completion for Contract No. FUL-2021-1: Fullerton Main Plant PFAS Water Treatment Plant;

   3. Increase project budget by $495,430 for a total project budget of $13,685,430; and

   4. Authorize the General Manager to transfer the Fullerton Main Plant PFAS Water Treatment Plant to the City of Fullerton effective the date of filing the Notice of Completion and quitclaim any property rights obtained for the project

4. NOTICE OF COMPLETION FOR CONTRACT GBM-2024-1 DESTRUCTION OF MONITORING WELLS AM-29A AND MCAS-10

   RECOMMENDATION: Agendize for September 18 Board meeting: Accept completion of the Work and Authorize filing a Notice of Completion for Contract No. GBM-2024-1

5. CONTRACT NO. FUL-2024-1 FULLERTON WELL KIM 2 PFAS WATER TREATMENT PLANT ENGINEERS REPORT, CATEGORICAL EXEMPTION, AND NOTICE INVITING BIDS

   RECOMMENDATION: Agendize for September 18 Board meeting:

   1. Approve the Engineer's Report for the city of Fullerton Wells Kim 2 and Sunclipse 10 PFAS Water Treatment Plant Project and

determine the project feasible, necessary and beneficial to the lands of the District;

2. Authorize filing of a Categorical Exemption for the Fullerton Well Kim 2 PFAS Water Treatment Plant project in compliance with the California Environmental Quality Act (CEQA) guidelines; and

3. Authorize publication of Notice Inviting Bids for Contract No. FUL-2024-1, Fullerton Well Kim 2 PFAS Water Treatment Plant

END OF CONSENT CALENDAR

INFORMATIONAL ITEM

6. BASIN STORAGE UPDATE FOR WATER YEAR 2023-24

CHAIR DIRECTION AS TO ITEMS IF ANY TO BE AGENDIZED AS MATTERS FOR CONSIDERATION AT THE SEPTEMBER 18 BOARD MEETING

DIRECTORS' ANNOUNCEMENTS/REPORTS

GENERAL MANAGER'S ANNOUNCEMENTS/REPORTS

ADJOURNMENT

WATER ISSUES COMMITTEE MEMBERS

Committee Members
Bruce Whitaker - Chair
Dina Nguyen - Vice Chair
Roger Yoh
Van Tran
Erik Weigand

Alternates
Denis Bilodeau
Steve Sheldon
Natalie Meeks
Valerie Amezcua
Cathy Green

In accordance with the requirements of California Government Code Section 54954.2, this agenda has been posted at the guard shack entrance and in the main lobby of the Orange County Water District, 18700 Ward Street, Fountain Valley, CA and on the OCWD website not less than 72 hours prior to the meeting date and time above. All written materials relating to each agenda item are available for public inspection in the office of the District Secretary. Backup material for the Agenda is available at the District offices for public review and can be viewed online at the District's website: www.ocwd.com

Pursuant to the Americans with Disabilities Act, persons with a disability who require a disability-related modification or accommodation in order to participate in a meeting, including auxiliary aids or services, may request such modification or accommodation from the District Secretary at (714) 378-3234, by email at cfuller@ocwd.com by fax at (714) 378-3373. Notification 24 hours prior to the meeting will enable District staff to make reasonable arrangements to assure accessibility to the meeting.

As a general rule, agenda reports or other written documentation has been prepared or organized with respect to each item of business listed on the agenda, and can be reviewed at www.ocwd.com. Copies of these materials and other disclosable public records distributed to all or a majority of the members of the Board of Directors in connection with an open session agenda item are also on file with and available for inspection at the Office of the District Secretary, 18700 Ward Street, Fountain Valley, California, during regular business hours, 8:00 am to 5:00 pm, Monday through Friday. If such writings are distributed to members of the Board of Directors on the day of a Board meeting, the writings will be available at the entrance to the Board of Directors meeting room at the Orange County Water District office.

MINUTES OF BOARD OF DIRECTORS MEETING
WATER ISSUES COMMITTEE
ORANGE COUNTY WATER DISTRICT
August 14, 2024, @ 12:00 p.m.

Director Whitaker called the Water Issues Committee meeting to order at 12:00 p.m. in the District Boardroom. Public access was also provided via Zoom webinar. The Secretary called the roll and reported a quorum as follows:

Committee Members		OCWD
Bruce Whitaker		John Kennedy – General Manager
Dina Nguyen	(absent)	Chris Olsen – Executive Director of Engineering/Water Resources
Roger Yoh		
Van Tran	(arrived 12:03 p.m.)	Mehul Patel – Executive Director of Operations
Erik Weigand		Jason Dadakis – Executive Director of Water Quality & Technical Resources
Alternates		Lisa Haney – Executive Director of Planning and Natural Resources
Denis Bilodeau		
Steve Sheldon	(arrived 12:20 p.m.)	Jeremy Jungreis – General Counsel
Valeria Amezcua		Leticia Villarreal – Assistant District Secretary
Natalie Meeks	(absent)	
Cathy Green		

CONSENT CALENDAR

The Consent Calendar was approved upon motion by Director Yoh, seconded by Director Weigand and carried [5-0], as follows:
Ayes: *Whitaker, Yoh, Weigand, Bilodeau, Amezcua*

1. Minutes of Water Issues Committee Meeting

The Minutes of the Water Issues Committee meeting held July 10, 2024, were approved as presented.

2. Amendment to Agreement with Aqueous Vets for Pressure Vessel Systems Piping Modification

Recommended for approval at August 21 Board meeting: Authorize issuance of Amendment No. 8 to Agreement No. 1422 with Aqueous Vets, for an amount not to exceed $11,496.

3. Agreement to Separation Processes Inc. for Technical Support on the GWRS Microfiltration and Reverse Osmosis Operations (MF/RO)

Recommended for approval at August 21 Board meeting: Authorize issuance of Agreement to Separation Processes Inc. for an amount not to exceed $125,000 to provide consulting services on a time and material bases for the GWRS MF and RO membrane processes through August 31, 2025

4. Renewal of Annual Software Support for GWRS Process Control System for Give Year Agreement

Recommended for approval at August 21 Board meeting: Authorize issuance of five-year Agreement with Emerson's limited business partner, Caltrol, in the amount of $390,281 for

Emerson Delta V Process Control System software support. The total for first year of agreement is $78,933 for the 2024/2025 fiscal year.

5. Professional Services Agreement with Rovisys to Perform a Comprehensive Cybersecurity Assessment of the Field Headquarters Supervisory Control and Data Acquisition System

Recommended for approval at August 21 Board meeting: Authorize issuance of a Professional Service Agreement to Rovisys for an amount not-to-exceed $47,218.00 to provide OT network infrastructures compliance with AWWA (American Water Works Association) standards compliance against Cyber threats.

6. Purchase Order to Promochrom Technologies LTD for Two SPE-03 Units for the Philip M. Anthony Water Quality Laboratory

Recommended for approval at August 21 Board meeting: Authorize issuance of Purchase Order to PromoChrom Technologies, Ltd. in the total amount of $89,997 for the purchase of two SPE-03 Solid Phase Extractors.

7. Contract No. EOCWD-2021-1: Authorize Notice of Completion, Ratify Change Orders, and Authorize Transfer

Recommended for approval at August 21 Board meeting: 1) Ratify issuance of Change Order Nos. 19 – 20 to Pascal & Ludwig for a total amount of $69,104; 2) Accept completion work and authorize filing a Notice of Completion for Contract No. EOCWD-2021-1: EOCWD PFAS Water Treatment Plant; and 3) Authorize the General Manager to transfer the EOCWD PFAS Water Treatment Plant to East Orange County Water District effective the date of filing the Notice of Completion and quitclaim any property rights obtained for the project.

8. Contract No. SA-2021-1: Authorize Notice of Completion, Ratify Change Orders, and Authorize Transfer

Recommended for approval at August 21 Board meeting: 1) **Ratify issuance of Change Order Nos. 1 – 2 to Pacific Hydrotech for a total amount of $191,394; 2) Increase overall project budget to $5,844,342; 3) Accept completion of work and authorize filing a Notice of Completion for Contract No. SA-2021-1: City of Santa Ana PFAS Water Treatment Plan Well No. 40; and 4) Authorize the General Manager to transfer the City of Santa Ana PFAS Water Treatment Plan Well No.40 to the City of Santa Ana effective the date of filing the Notice of Completion and quitclaim any property rights obtained for the project.**

INFORMATIONAL ITEM

9. Introduction to Resilience Plan and Next Steps

Recharge Planning Manager Adam Hutchinson introduced the new adaptive management plan, titled “OCWD Resilience Plan: Adaptive Strategies for Securing Abundant and Reliable Water Supplies.” He explained that this plan represents a shift from the previous facilities-based planning approach to a project-based planning tool. He shared that the new strategy offers a more comprehensive and flexible framework to address the District's future challenges. He advised that the plan spans five to 25 years, adapting to the agency's evolving needs and conditions. He stated it also aligns with the Urban Water Management Plan requirements that the Producers must meet. Mr. Hutchinson reported that staff reviewed the plan with the Groundwater Producers during a workshop on July 11, receiving positive feedback. He stated that the goal is to present a final report to the Board in December.

CHAIR DIRECTION AS TO ITEMS IF ANY TO BE AGENDIZED AS MATTERS FOR CONSIDERATION AT THE AUGUST 21 BOARD MEETING

It was agreed to place all items on the Consent Calendar at the August 21 Board meeting.

ADJOURNMENT

There being no further business, the meeting was adjourned at 12:28 p.m.

_____

Bruce Whitaker, Chair

2

AGENDA ITEM SUBMITTAL

Meeting Date: September 11, 2024

To: Water Issues Committee
Board of Directors

From: John Kennedy

Staff Contact: P. Versluis/J. Dadakis

Budgeted: Yes
Budgeted Amount: $380,000
Cost Estimate: $377,548
Funding Source: R&R
Program/Line Item No. R24001
General Counsel Approval: N/A
Engineers/Feasibility Report: N/A
CEQA Compliance: N/A

Subject: REPLACEMENT OF WATER QUALITY WESTBAY VEHICLE T-97

SUMMARY

The Water Quality Department's current Westbay Vehicle (T-97) is a one-of-a-kind, specialized water quality sampling vehicle designed to collect samples from the District's extensive Westbay multi-port monitoring well network. The vehicle is approaching 25 years old with aging mechanical components and is becoming difficult to maintain due to the unavailability of spare parts. Due to the importance of continuing this specialized sampling process which allows for unique multi-depth monitoring at 56 locations across the groundwater basin, staff recommends replacing the Westbay Vehicle with a new custom-designed vehicle.

Attachments: Quotation from Farber Specialty Vehicles, Quotation from Runaso, and Quotation from LDV Custom Specialty Vehicles.

RECOMMENDATION

Agendize for September 18 Board meeting: Authorize issuance of Purchase Order to LDV Custom Specialty Vehicles for $347,546.00 (not including tax) for purchase and delivery of Mobile Water Sampling Lab Vehicle and authorize the payment of $30,002 use tax for this vehicle purchase to the California Department of Tax and Fee Administration

BACKGROUND/ANALYSIS

Westbay multi-port monitoring wells allow for depth-discrete water level measurement and sampling. They use a unique string of inflatable packers to isolate individual screened portions within a single vertical well casing. OCWD has installed and monitored 56 of the Westbay multiport monitoring wells throughout the groundwater basin since the late 1980s. The multi-level Westbay wells are the backbone of the District's basin-wide monitoring well network, comprising more than 550 depth-specific monitoring points at depths up to a depth of 2,100 feet. They have provided hydrogeologic information integral to the development and operation of the OCWD basin groundwater model, water level data for the annual basin storage/accumulated overdraft determination, and water quality data used to support the North Basin VOC plume delineation, former MCAS El Toro TCE and PFAS plume monitoring, seawater intrusion monitoring, basin wide PFAS characterization, and other water quality assessments.

The current Westbay Vehicle (T-97, Figure 1) was purchased in 1999 and manufactured by Dodgen to specifically meet the unique needs of this monitoring. The Westbay vehicle provides a specialized platform in which OCWD Water Quality staff can safely and

effectively monitor more than 500 depth-discrete monitoring ports up to a depth of 2,100 feet. The current vehicle is equipped with a customized boom, electronic winch and cable system, and specialized sampling tool with stainless steel sample bottles which are used to collect water quality samples from the specialized Westbay packer and port system at these extreme depths. The vehicle was also designed with a deep cell battery system capable of powering necessary sampling equipment all day without running the vehicle or a generator.

Figure 1 – Current T-97 Westbay Sampling Vehicle

Knowing that replacement was necessary, funding for a new Westbay Vehicle was included in the District's approved FY24-25 Replacement & Refurbishment (R&R) budget. Water Quality and Purchasing staff contacted 12 specialty vehicle manufacturing companies to request quotes on providing a vehicle that meets the design criteria based upon the current Westbay vehicle configuration. Seven companies declined the opportunity to provide a quote while two companies (La Boit Specialty Vehicles Inc. and American Camper Shells) were unable to meet all the requested specifications. Three companies provided quotes meeting the vehicle specifications: Farber Specialty Vehicles, Runaso, and LDV Custom Specialty Vehicles (Table 1).

Table 1: Responsive Vendor Quotes

Vendor	Quote
Farber Specialty Vehicles	**$514,732**
Runaso	**$379,700**
LDV Custom Specialty Vehicles	**$342,871**

Staff recommends purchasing the new Westbay Vehicle from LDV Custom Specialty Vehicles (Figure 2), as LDV's quote met the vehicle's unique required specifications at the lowest cost. Furthermore, LDV was also the only company to engineer a built-in boom system, a key component required to use the Westbay sampling system. LDV also

provided high quality and detailed engineered drawings of the vehicle at no cost and communicated very effectively with District staff during the quotation process. The total purchase price of $342,871 does not include tax and delivery.

Figure 2 – Proposed Design from LDV Custom Specialty Vehicles (Outside)

PRIOR RELEVANT BOARD ACTION(S): N/A

Attachment A – Quote from Farber Specialty Vehicles

FARBER
SPECIALTY VEHICLES

7052 Americana Parkway
Columbus Ohio, 43068
Toll Free (800) 331-3188
Fax (614)759-2098

CUSTOMER

Agency: Orange County Water District
Contact Name: Marcus Villalobos
Address:18700 Ward Street
Fountain Valley, CA 92708
Phone: 714.378.3261
Email:mvillalobos@ocwd.com

QUOTE/PROJECT DESCRIPTION **V-1**

Farber F550, Diesel
19,500 GVWR
18' Floorspace, NON CDL

TOTAL UNIT PRICE $ 514,732.20

CONTACT	TERMS			DELIVERY	SHIPPED VIA	DATE
Brock Templin	50% deposit, remainder due Net30 at delivery		COMMERCIAL	18-24 Months	DESTINATION	8/14/2024

PART ID	QUANTITY			UNIT PRICE	TOTAL PRICE
		VEHICLES - FOB Continental US			
	1	Cab Chassis - F Series 18	F-SERIES	$ 365,000.00	$ 365,000.00
		Interior Options			
	1	Side sliding window		$ 592.00	$ 592.00
	1	Emergency exit window		$ 690.00	$ 690.00
		Interior Finish Options			
	1	Upgraded vinyl flooring		$ 2,215.00	$ 2,215.00
		Exterior Entry Options			
	1	Roll up door		$ 2,521.00	$ 2,521.00
		Power Supply Options			
	0	7KW Quiet diesel generator		$ 15,653.00	$ -
	1	Bronze battery pack, vehicle power supply		$ 54,157.00	$ 54,157.00
	1	Inverter system		$ 5,021.00	$ 5,021.00
		Solar Options			
	1	1200W solar panel system		$ 12,995.00	$ 12,995.00
		Audio Video Options			
	1	Back-up camera system, LCD color monitor		$ 1,712.00	$ 1,712.00
		Appliance Options			
	1	Microwave oven, cabinet mounted		$ 547.00	$ 547.00
		HVAC Options			
	1	Powered reversible roof vent w/ max air cover		$ 615.00	$ 615.00
	1	Roof mounted air conditioner		$ 1,334.00	$ 1,334.00
		Plumbing Options			
	1	Plumbing system w/ pump, sink, holding & waste tank, hot water heater and monitor panel		$ 7,064.00	$ 7,064.00
		Interior Lighting Options			
	1	LED ceiling light package (per vehicle)		$ 4,057.00	$ 4,057.00
		Exterior Lighting Options			
	2	LED scene light (each)		$ 525.00	$ 1,050.00
		Retrofit Options			
	0	Engineering Time (per hour)		$ 231.00	$ -
	1	Basic electrical, power panel, panduit, receptacles, interior lighting, heaters, HVAC connections		$ 40,170.00	$ 40,170.00
	0	Hourly rate for custom modifications		$ 176.00	$ -
		OTHER			
		CAD Design Engineering & electrical schematics 3%			$ 14,992.20
				TOTAL PRICE	**$ 514,732.20**

SPECIAL NOTES AND INSTRUCTIONS

Farber Specialty Vehicles will make every effort to provide the necessary components as quoted but models, model numbers and names change often and FSV (Farber) reserves the right to replace a component with equal or better features if the quoted product is unavailable.

Please confirm your acceptance of this quote by signing this document.

Signature Print Name Date

Thank you for your business!

Attachment B – Quote from Runaso

Runaso
To the outside of the box

MOBILE WATER LAB

Orange County Water District
18700 Ward Street
Fountain Valley CA United States
92708

Marcus Villalobos
mvillalobos@ocwd.com
(714) 378-3261

Reference: 20240807-103048155
Quote created: August 7, 2024
Quote expires: October 6, 2024
Quote created by: Ramin Goudarzi
CTO
goudarzi@runaso.com
+14379711369

Comments from Ramin Goudarzi

Please do not hesitate to inquire about any concerns you may have.

Products & Services

Item & Description	Quantity	Unit Price	Total
MOBILE WATER LAB Based on the technical specifications	1	$379,700.00	$379,700.00
	One-time subtotal		$379,700.00
		Total	**$379,700.00**

Purchase terms

The buyer is responsible for all federal and state import duties, taxes, and other fees. This document includes the quote based on the buyer's technical specifications and shipping costs.

Attachment C – Quote from LDV Custom Specialty Vehicles

CUSTOM SPECIALTY VEHICLES

180 Industrial Drive
Burlington, WI 53105 USA

Phone: 800-558-5986
Fax: (262) 767-2529
Direct: +1 (262) 763-0147
www.ldvusa.com

PRELIMINARY SPECIFICATIONS FOR:

Orange Co Water District (CA)

MOBILE WATER LAB

LDV PROPOSAL # C24LAB-35589-23

JULY 10, 2024 REV3
~~MAY 7, 2024 REV2~~
~~JUNE 28, 2023 REV1~~
~~JUNE 16, 2023~~

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TABLE OF CONTENTS

CUSTOM SPECIALTY VEHICLES

180 Industrial Drive
Burlington, WI 53105 USA

Phone: 800-558-5986
Fax: (262) 767-2529
Direct: +1 (262) 763-0147
www.ldvusa.com

PRICING PAGE:

Total price per unit as specified, FOB Origin	$342,871.00
Delivery charge to Orange County (CA)	$4,675.00
Total price per unit	$347,546.00

Delivery terms: Ask your Sales Representative.

Payment Terms: 50% down payment, 50% net 30.

Quote is firm for 30 days from specification date.

Quoted price does not include any applicable FET, federal, state or local tax unless specified.

LDV
CUSTOM SPECIALTY VEHICLES

180 Industrial Drive
Burlington, WI 53105 USA

Phone: 800-558-5986
Fax: (262) 763-0156
Direct: +1 (262) 763-0147
www.ldvusa.com

Item	Qty	
1.00		**CHASSIS/BODY DIMENSIONS:** 17' dry van • Cab-to-Axle 118" • Wheelbase of chassis: 176" • Overall length of apparatus: 288" • Overall apparatus width, rub rail to rub rail: 96" • Overall height of apparatus (loaded): 134" • Interior walkway height raw body: 83" • Interior walkway height finished: 81.5" • Interior walkway length: 204" • Interior raw body width: 93" • Interior finished body width: 87" Final measurements are dependent on body builder, chassis components, axles, tires, frame, suspension, and roof-mounted equipment.
2.00		**CHASSIS:**
2.01	1	New Ford E-450 Cutaway Base SD chassis; 176" wheelbase, dual rear wheels • Engine: 7.3L V8 gas • Transmission: Electronic 6-speed Automatic with overdrive, includes tow/haul. • 4x2 rear wheel drive • 14,500 GVWR
2.02	1	Spring upgrade installed on rear suspension.
2.03	1	Federal Signal Back-up alarm model 210331.
2.04	1	US DOT triangle reflector kit with three (3) triangles, for compliance with FMCSA regulations. Includes plastic storage case. Kit will be shipped loose in the vehicle.
2.05	1	Route horizontal exhaust to streetside.
3.00		**BODY:**
3.01	1	Load space area shall be 83" high x 93" wide x 17' long custom dry van body with the following: • Aerodynamic cap on front bulkhead unit with 26" sliding door access to cab. • FRP front wall • Aluminum .040 walls. • 1-1/2" Aluminum I-Beam on 16" centers. • Full width Twin rear doors with bar lock hardware on the outside. No windows and no internal door hardware on the inside. Rear doors to open 270 degrees. • Aluminum roof • 1-1/8" tongue & groove plywood floor. • 18" Skirts
3.02	1	Rear aluminum bumper. 12" deep by full body width and grip strut surface. **NOTE:** Bumper will be powder coated Belgian Black No-Slip.
3.03	1	Maxxima LED Round combination stop/tail, turn and reverse lights.
3.04	1	Cast Products LP0013-1 aluminum license plate holder with LED light.

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Item	Qty	
3.05	1	LDV rear mud flaps. Includes anti-sail brackets when required.
3.06	1	Install One (1) Rear mounted rotating Winch boom, boom to pivot and have lockable positions. capacity of 500-1000lbs and One (1) Steel Winch table, 14" W x 15"H x 36L on the street side below the street side window. This will have a 120v wall outlet to power customers Winch that will be mounted to the table. Customer will mount Winch after they receive the vehicle.
4.00		**PAINT:**
4.01		Body base color shall be white.
5.00		**INDEPENDENCE ONYX INTERIOR:** • Wall Covering: #66 Silver Smooth FRP • Ceiling Fabric: Silver Mist • Floor Covering: #150 Onyx PVC Flooring • Office Chairs: Black • Vinyl Coverings: #WH1-2140 Whisper Black • Cabinets: #EBT-2-2002 Black Powder Coated • Counters: #9091-ML Midnight Melange Solid Surface Note: Manufacturer reserves the right to substitute equivalent materials.
6.00		**DRIVER / PASSENGER CAB AREA:**
6.01		Cab Area Additions: • Vehicle height sign on dash. • Vehicle shall have a Final Stage Vehicle Certification and Altered Vehicle Certification as required by Federal Motor Vehicle Safety Standards (FMVSS) 49 CFR Part 567.5 and 567.7 • Payload sticker in cab area with vehicle axle load ratings and available axle payload as built.
6.02	1	Color back up camera system with 7" LCD monitor and day/night camera.
7.00		**WALLS, CEILING AND FLOOR:**
7.01		Install wood furring strips on interior body side posts and roof supports to provide space for the installation of insulation, conduit and electrical boxes.
7.02		Insulate walls with a minimum of 2-1/2" of fiberglass insulation. Cover interior body side posts with 1/2" plywood sub wall.
7.03		Cover sub wall with smooth finish Kemlite 0.075" fiberglass reinforced plastic (FRP) lining. Wall covering shall be a continuous piece front to back, no seams acceptable.
7.04		Insulate ceiling with a minimum of 2-1/2" of fiberglass. Cover interior roof supports with 1/2" plywood.
7.05		Cover sub ceiling with Kemlite 0.075" fiberglass reinforced plastic (FRP) lining. Ceiling covering shall be a continuous piece front to back, no seams acceptable.
7.06		Floor underlayment to be 5/8" exterior grade tongue and groove structural plywood, 6 ply, face veneer plugged and sanded.
7.07		Lonseal Loncoin II Flecks non-skid commercial grade PVC flooring. The flooring shall be continuous, one piece full length, full width, no seams.
7.08		Vinyl cove molding (mop board) at base of wall, 2-1/2" high. Installed where required.
7.09		All bulkheads shall be covered with Kemlite 0.075" FRP. Trim exposed edges of bulkheads with rounded anodized aluminum trim where applicable.

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Item	Qty	
7.10	1	Cover rear load space entry doors with 0.100" bright aluminum diamond plate with rubber grab handles.
7.11	2	Custom fabricated door holder, manually operated to hold door in fixed open position, with swivel base.
7.12	1	Hehr curb side mounted 30" wide x 19" high flush mount deep-tint horizontal sliding egress window with screen.
7.13	1	Hehr street side mounted 30" wide x 19" high flush mount deep-tint horizontal sliding egress window with screen.
8.00		**GALLEY / LAVATORY:**
8.01	1	Microwave oven, minimum 1.0 cu. ft..1000-watt. **NOTE:** Current model is Panasonic NN-SU656B 1.3 Cu. Ft. Black Countertop Microwave Oven Microwave oven to be mounted above street side storage closet.
8.02	1	Pressurized Water System. Includes: • One Stainless steel galley sink with Two (2) Single handle deck mounted chrome plated faucets. Two (2) Deck mounted faucets, 18" High goose neck • (2) Aqua Jet model #5503-AV15-B636 (or current model) 5.3 GPM water pump • One (1) 10 gallon Fresh water tank -Connected to single faucet • One (1) 10 gallon Soapy water tank -Connected to single faucet • One (1) 25 gallon Waste water tank • All plumbing pressure pipes shall be PEX tubing. • Regulated city water fill so that system can be pressurized using city water when available. • Winterizing valves mounted in line on the input side of the water pumps. Valve allows antifreeze to be pumped throughout the system to winterize plumbing.
8.03	2	Exterior Lockable Dual RV Water Inlets - City Water and Gravity Fill - Plastic Valve. • White Surface Mount • 7-5/8 Inch Diameter Flange • 1/2 Inch Deep • Overall dimensions: 7-5/8" wide x 6-1/2" tall • Cutout dimensions: 5-7/8" wide x 4-3/4" tall • Sliding door dimensions: 1-7/16" tall x 1-1/4" wide • Lockable hatch door includes 2 keys and a keyless thumb lock • Interior connections: • City Water: 1/2" MPT • Gravity fill: 1-1/8" and 1-1/4" barbed • Air vent: 1/2" barbed • Air vent attaches 1/2" tubing to tank so water flows out smoothly **NOTE:** Locate: Both water inlets on the curb side. (1) Connect one to the Fresh water tank (1) Connect one to the Solution/ soap water tank

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Item	Qty	
9.00		**SEATING:**
9.01	1	HON Basyx HVL210 pneumatic task chair with five-star caster spider base, adjustable height and no armrests.
9.02	1	Securement strap with buckle installed under counter to secure office chair.
9.03		Fabricate and install fixed bench seating with removable cushions as shown on drawing. Bench seat cushions shall be covered in heavy-duty vinyl. **NOTE:** Located on street side
9.04		**BENCH SEAT REQUIREMENTS:** • Foam for seat backs and bottoms shall be firm density. • All bench seating material must meet Federal Motor Vehicle Safety Standards part 571.302 Flammability of Interior Materials. • Material corners shall be squared or angled to fit precise cut of foam. • Foam shall be bonded to plywood backer with industrial grade adhesive. • Attachment of fabric/vinyl to backer shall utilize industrial grade upholstery staples.
10.00		**CABINETS:**
10.01		Custom fabricated aluminum cabinets located as shown on drawing. Cabinet specifications: • Base cabinets constructed of 0.080" powder coated aluminum with anodized aluminum frames. • Base cabinet doors are double shell, formed from a single sheet of 0.080" aluminum, with a 0.040" aluminum door back attached. • Overhead cabinets constructed of 0.064"powder coated aluminum with anodized aluminum frames. • Overhead cabinet doors are double shell, formed from a single sheet of 0.064" aluminum, with a 0.040" aluminum door back attached. • Overhead cabinet doors swing up with gas spring lift supports.
10.02		Radius edging incorporated as design permits.
10.03	4	Adjustable aluminum shelf with 1" lip. **NOTE:** Street side closet, One shelf to be " Sample Tube Storage"
10.04	1	Magnetic dry erase board framed in aluminum. Includes aluminum clip frame for easy board replacement, sized as required. **NOTE:** Mount street wall towards rear, above counter top.
10.05	1	Fixed aluminum shelf, 36" wide x 16" deep **NOTE:** Shelf mounted to wall above winch table and just under the window. This shelf to hold winch controller.
10.06		Wilsonart Gibraltar 1/2" solid surface countertop over subsurface. Solid surface countertop shall have a 1-1/2" front lip with radius edge. **NOTE:** Black Onyx Mirage 9092MG

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Item	Qty	
10.07	1	120/240Vac Control Center, 12Vdc power panels, master disconnect switch and auto resetting breakers shall be located in cabinet as shown on drawing.
11.00		**HVAC SYSTEM:**
11.01	1	Fan-tastic Vent model 1450 3-speed reversible 12" power roof ventilator.
11.02	1	Low profile rooftop air conditioner. Includes: • 13,500 nominal Btu/hr air conditioner with condensate pump. • Ceiling Assembly with 6,000 Btu/hr heat strip
12.00		**AC ELECTRICAL SYSTEM:**
12.01	1	30A 120/240Vac control panel with six (6) AC UL listed magnetic/hydraulic branch circuit breakers, each with an LED indicator, One 30A main breaker with shore power reverse polarity indicator plus five breakers for branch circuits.
12.02	1	Marinco 30A-125Vac waterproof shore power inlet, 50-ft. 30A-125Vac shore power cord, 6-ft. 30A-125Vac pigtail.
12.03	2	20A-125Vac duplex receptacle. Receptacle is not dedicated to any installed equipment. **NOTE:** Locate: Two (2) street side One (1) under sink base cabinet
12.04	3	20A-125Vac GFCI duplex receptacle. These receptacles are not dedicated to any installed equipment. **NOTE:** Locate: Two (2) curb side above counter top.
12.05	1	**120/240VAC WIRING REQUIREMENTS:** • All 120/240Vac main wiring shall be stranded THHN wire and run in non-metallic Carlon Carflex liquid tight conduit. . • All 120/240Vac branch circuit wiring shall be boat cable (AWG 12 minimum). • All electrical circuits and appliances shall conform to applicable national electrical codes.
13.00		**DC ELECTRICAL SYSTEM:**
13.01	1	12Vdc control panel with seven (7) UL listed magnetic/hydraulic circuit breakers with red LED indicators and 12Vdc digital voltmeter.
13.02	1	Dual Auxiliary Battery Disconnect System. Enables auxiliary battery disconnect to be activated from cab or load space area.
13.03	1	GreenPower™ lithium battery power plan system. Includes: • Battery Monitor • Five (5) Lithium Battery 12,8V/330Ah – 10.4" tall x 14.1" wide x 8.1" deep • Six (6) 200-Watt 12 Volt Monocrystalline Solar Panel • Control Monitoring Panel • 5000 Watt Inverter/Charger • Smart Solar Charge controller **NOTE:** Batteries installed in outside curb side compartment.
13.04	10	Light, Orion 6" LED, neutral white with polished bezel and voltage regulation.

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Item	Qty	
13.05		**12VDC WIRING REQUIREMENTS:** • 2-gauge minimum copper stranded battery cable shall be used for 12Vdc main supply lines. All cable runs shall be full length, no splices. All cable terminals shall be staked and soldered. All cable shall be enclosed in convoluted polyethylene tubing and the ends of the cable shall be sealed with color-coded shrink-wrap identifying the function of the cable. • All added electrical branch circuits shall be protected from over-current by resettable circuit breakers appropriately rated for the load. Only circuit breakers shall be used in the installation of added electrical branch circuit wiring (plug type fuses are unacceptable). • Circuit breaker functions shall be identified by engraved or printed labels. • All added wiring for load runs of AWG 10, 12, 14, and 18, shall conform to MIL-W-16878/2 and/or UL1007/1569" • All added wiring for load runs of AWG 8, shall conform to MIL-W-16878/3 and/or UL1028 • Wire terminals for added circuits must conform to MIL-T-7928. Terminals shall be insulated, insulation grip, TYPE II, CLASS 2 and shall be crimped with tooling recommended by the terminal manufacturer. • All wiring shall be numbered or lettered on 6" centers minimum. • Wiring shall be protected from chafing and abrasion with convoluted polyethylene tubing (wire loom) as required. • Where wire passes through sheet metal, bulkheads and structural supports, plastic grommets shall be used to protect both wiring and wire looms. • All wire bundles shall be tied with trimmed nylon ties. • Extreme care shall be exercised to provide for easy serviceability of the system in future years. • Extreme care must be taken in the installation to avoid the engine manifold, engine exhaust, and muffler, which could expose the wiring to severe overheating during long periods of operation. Proper insulation and heat deflection panels must be installed in such areas. • A high-current 12Vdc system wiring schematic shall be provided. • These are the minimum acceptable 12Vdc wiring requirements.
14.00		**MISCELLANEOUS ELECTRONICS:**
14.01	1	Cast Products EB00013-1 cast aluminum weatherproof box with key lock. **NOTE:** For leveling jack control components
15.00		**EXTERIOR STORAGE COMPARTMENTS:**
15.01	1	Single door underbody Green power battery storage compartment with slide out battery tray. Compartment approximate interior dimensions up to 18" high x up to 60" wide x 25" deep constructed from 0.125" aluminum with all welded seams. **NOTE:** Battery storage compartment to house five (5) lithium batteries, 10.4"H x 14.1" W x 8.1" L.
15.02		Compartments listed above will be constructed to the following specifications: • Sweep out type bottoms with 1/2" drain holes. • 2" box pan doors and door frames fabricated from 0.125" aluminum. • Door frames shall be riveted to the body and welded to the compartments. • Compartments shall have an LED light that illuminates when the door is opened. Compartment doors will be constructed to the following specifications: • Stainless steel hinges attached with stainless machine screws.

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Item	Qty	
		• Slam latches and flush mounted handles. • 0.100" bright polished aluminum diamond plate on interior surfaces fastened with stainless hardware. • All doors shall be sealed with industrial grade neoprene gasket.
16.00		**MISCELLANEOUS OTHER:**
16.01	1	5 pound dry chemical fire extinguisher.
16.02	1	Battery powered combination Carbon Monoxide and Smoke alarm.
16.03	1	Complete manual set, including the following (as applicable): • As-built specifications with interior and exterior drawings as used for production of the vehicle. • Chassis and body owner's manuals. • 12Vdc and 120Vac legends showing wire gauge, color, number and function. • 12Vdc high current wiring diagram illustrating the battery system, isolators, power converters, alternator, disconnect switches and control panels. • Roof top antenna placement drawing and legend identifying antenna placements and termination points. • Audio/Video cabling diagram. • Chassis and generator maintenance and service logs. • Battery maintenance information. • All individual component manuals and warranty registration cards as provided by component manufacturers. Customer is responsible for completing warranty cards and mailing them to manufacturers.
16.04	1	TRAINING. An LDV representative will provide up to four (4) hours of orientation on LDV provided systems, as applicable: • Leveling system operation • AC and DC electrical systems operation • HVAC systems operation
16.05		LDV warranty of one (1) year/12,000 miles, whichever comes first, for manufacturer's defects in materials and workmanship. Refer to LDV warranty statement for details of warranty coverage.
16.06		Note: Project scope does not include certain tasks or costs that are the responsibility of the customer unless clearly specified as LDV supplied. These items include, but are not limited to: • Radio and telephone system programming. • Activation and service fees for cellular telephones, satellite telephones, satellite TV, satellite internet access. • Loading and configuring computer software. In the event of a discrepancy between the drawing and specification, the specification will supersede. LDV reserves the right to make substitutions of equal quality and specifications of those listed in this document. Some component models change frequently. In the event that a specified component model becomes unavailable at the time LDV attempts to source it, LDV will provide a replacement model with equivalent or better features, as agreed upon with the customer.

AGENDA ITEM SUBMITTAL

Meeting Date: September 11, 2024

To: Water Issues Committee
Board of Directors

From: John Kennedy

Staff Contact: C. Olsen/R. Bouley

Budgeted: Yes
Budgeted Amount: $13,190,000
Final Cost: $13,685,430
Funding Source: CIP
Program/Line Item No.: C19017
General Counsel Approval: Yes
Engineers Report: Completed
CEQA Compliance: Cat. Ex.

Subject: CONTRACT NO. FUL-2022-1 AUTHORIZE NOTICE OF COMPLETION, RATIFY CHANGE ORDERS, AUTHORIZE BUDGET INCREASE, AND AUTHORIZE TRANSFER

SUMMARY

Construction of the City of Fullerton Main Plant PFAS Water Treatment Plant by Pacific Hydrotech is complete. Staff recommends filing a Notice of Completion, ratifying change orders, authorizing a budget increase and authorizing transfer of improvements for Contract FUL-2022-1.

RECOMMENDATION

1. Ratify issuance of Change Order Nos. 1 – 11 to Pacific Hydrotech for a total amount of $348,168;
2. Accept completion of work and authorize filing a Notice of Completion for Contract No. FUL-2021-1: Fullerton Main Plant PFAS Water Treatment Plant;
3. Increase project budget by $495,430 for a total project budget of $13,685,430; and
4. Authorize the General Manager to transfer the Fullerton Main Plant PFAS Water Treatment Plant to the City of Fullerton effective the date of filing the Notice of Completion and quitclaim any property rights obtained for the project.

BACKGROUND/ANALYSIS

Construction of the City of Fullerton PFAS Water Treatment Plant is complete and has started producing water as of July 2024. This project included improvements to Fullerton's Well 3A, and these expenses will be reimbursed by Fullerton.

There were several changes to the plans due to unknown utilities and buried debris, as well as design changes and operational modifications that were not accounted for with the original design. These changes are partially reimbursed by Fullerton. Change Order Nos. 1-11 were executed under the General Manager's signing authority and include changes as summarized below:

CCO #1. Additional over excavation at backwash tank pat and additional excavation for MH #8 connection - Add $12,210.97 and 0 Calendar Days.

CCO #2. Additional over excavation for privacy wall footing and move conflicting rebar at GAC pad - Add $190,359.17 and 0 Calendar Days.

CCO #3. Delay due to City planning and coordination of well shutdown, export unsuitable dirt from site, and add 1-foot spool to 24" EW line - Add $20,638.24 and 69 Calendar Days.

CCO #4. Add card reader to gate and modify foundation for VFD - Add $6,438.41 and 0 Calendar Days.

CCO #5. Add security knock out to received light pole and replace feeders to pump #4 and #7 - Add $15,701.90 and 0 Calendar Days.

CCO #6. Remove and dispose of unsuitable fill at backwash tank, additional labor for setting pipe racks due to design change, weld additional sample ports, modify 10 spools to relocate PRVs, add signage to GAC Vessels, and add additional post to access gate - Add $22,660.32 and 42 Calendar Days.

CCO #7. Add pressure transmitter and gauge to analyzer panel, remove and dispose of unsuitable soil from bioswales, and revise connection from existing piping to new Well 3A pump - Add $39,747.20 and 25 Calendar Days.

CCO #8. Add well casing thickness inspection survey, replace missing spool at Well 3A piping, and install additional piping at Well 3A - Add $27,741.80 and 3 Calendar Days.

CCO #9. Add electrical conduit and outlets at Well pump shelter, add spare conduits for future backwash pumps, install new prelube line to Well 3, extend chain link fence to new CMU wall, relocate sample station per DDW direction, add pipe support at backwash tank drain, modify hose for dolphin strainer at backwash tank, and credit swage patching that was not performed – Add $6,217.11 and add 5 Calendar Days.

CCO #10. Repair damaged Valve box, modify PLC control panel HDMI, and replace existing Well 3A breaker - Add $7,083.00 and 0 Calendar Days.

CCO #11. include the Final Davis Bacon Wage Rate Determinations for Orange County Modification 8, published April 29, 2022 – Add $0 and 0 Calendar Days.

The net total of Change Order Nos 1-11 is $348,168. The total change order percentage for this contract is 4.3%. Table 1, below, shows the final project budget:

Table 1: Fullerton Main Plant PFAS Treatment Budget Summary

Description	Budget	Budget
Design, CM, Permitting		
Tetra Tech Work Order No. 4-4B	$1,573,353	$1,573,353
Tetra Tech Work Order No. 4C	*$0*	*$425,000*
Tetra Tech Work Order No. 4D	*$0*	*$202,100*
Tetra Tech Work Order No. 4E	*$0*	*$96,550*
Permitting	*$10,000*	*$3,085*

Main Plant Construction		
Contract FUL-2022-1	$8,053,035	$8,053,035
CCOs 1 – 11	*$0*	*$348,168*
Pressure Vessel Pre-Purchase	*$2,301,357*	*$2,312,990*
GAC Media	$463,620	$463,620
City of Fullerton SCADA Integration	*$0*	*$147,529*
OCWD Staff Expense	*$0*	*$60,000*
Project Contingency	*$788,635*	*$0*
Total Main Plant Project Budget	$13,190,000	$13,685,430
Fullerton Contribution (Credit to OCWD)	*($0)*	*($454,732)*
Total Cost to OCWD	***$13,190,000***	***$13,230,698***

The PFAS Treatment Facilities and Program Agreement executed between the District and Fullerton requires OCWD to transfer the Treatment Systems to the City upon filing of the construction contract Notice of Completion. It is recommended that the General Manager be authorized to transfer the Treatment System to the City of Fullerton.

PRIOR RELEVANT BOARD ACTION(S)

5/17/23, R23-5-65: Approving Agreement to Calgon Carbon Corporation for Fullerton Main Plant GAC Media

7/20/22, R22-7-94: Awarding Contract No. FUL-2022-1, Fullerton Main Plant PFAS Water Treatment Plant, to Pacific Hydrotech Corp

1/19/22, R22-1-7: Receiving and Filing Engineer's Report for Fullerton Main Plant PFAS Water Treatment Plant Project and Determining the Project Feasible, Necessary and Beneficial to the Lands of the District; Authorizing Publication of Request for Proposals to Procure and Install Granular Activated Carbon Media; Authorizing Publication of Notice Inviting Bids for Contract No. Ful-2022-1, Fullerton Main Plant PFAS Water Treatment Plant, and Authorizing Filing of a Categorical Exemption.

4/21/21, R21-4-64: Issuance of Amendment No. 3 to Agreement No. 1423 for an additional amount not to exceed $282,571 to modify five treatment vessel systems to meet the treatment strategy selected for the city of Fullerton is authorized.

10/21/20, R20-10-135: Issuance of Amendment No. 1 to Agreement No. 1422 with Aqueous Vets, for an amount not to exceed $306,338 and Issuance of Amendment No. 2 to Agreement No. 1423 with Evoqua, for an amount not to exceed $533,593 is authorized to modify 55 treatment vessel systems (110 vessels) to meet State Water Resources Control Board, Division of Drinking Water (DDW) requirements.

5/6/20, R20-5-56: The following agreements are authorized for the purchase of PFAS treatment pressure vessel systems: Agreement to Aqueous Vets for the purchase of

25 systems for a price not to exceed $8,159,052 and Agreement to Evoqua and for the purchase of 30 systems for a price not to exceed $11,020,220; and, upon approval as to form by District General Counsel, execution of such agreements by the District officers is authorized.

1/22/20, R20-1-13: Issuance of a Request for Quotes to pre-purchase up to 150 PFAS treatment vessels; Issuance of a Request for Proposals for on-call consultants to prepare PFAS Treatment System designs; Execution of PFAS treatment system professional services agreements for design services with the highest ranked consultants; and Establishment of a project design budget of $10,000,000.

AGENDA ITEM SUBMITTAL

Meeting Date: September 11, 2024

To: Water Issues Committee
Board of Directors

From: John Kennedy

Staff Contact: R. Herndon/D. Field

Budgeted: Yes
Budgeted Amount: $45,000
Final Cost: $27,500
Funding Source: R&R
Program/ Line Item No.: R23031
General Counsel Approval: N/A
Engineers/Feasibility Report: N/A
CEQA Compliance: Yes

Subject: NOTICE OF COMPLETION FOR CONTRACT GBM-2024-1 DESTRUCTION OF MONITORING WELLS AM-29A AND MCAS-10

SUMMARY

BC2 Environmental LLC. (BC2) has completed all work under Contract GBM-2024-1 for the destruction of obsolete monitoring wells AM-29A and MCAS-10. The final costs were $27,500.

RECOMMENDATION

Agendize for September 18 Board meeting: Accept completion of the Work and Authorize filing a Notice of Completion for Contract No. GBM-2024-1.

BACKGROUND/ANALYSIS

AM-29A

Monitoring well AM-29A was constructed by the Orange County Transportation Authority (OCTA) in 1992 to a depth of 97 feet. When constructed, OCTA named this well MW-1. This perched aquifer well was installed to investigate an underground storage tank leak on OCTA property. Attached Figure 1 shows the location of the well.

In 1999, OCWD accepted responsibility for the well and renamed it AM-29A. Between 1999 and 2017, OCWD used this well to monitor groundwater levels and quality in the North Basin area. OCWD stopped monitoring AM-29A in 2017 because no significant contamination had been detected in the well, and the well is too shallow to provide useful groundwater level data for the regional Shallow Aquifer. For these reasons, staff determined that the well should be properly destroyed and sealed.

MCAS-10

Monitoring well MCAS-10 was constructed by OCWD in 1989 to a depth of 389 feet to investigate the extent of the trichloroethylene (TCE) plume that originated from the former Marine Corps Air Station El Toro and to characterize the local hydrogeology. Attached Figure 2 shows the location of MCAS-10. OCWD and the Department of the Navy (Navy) used this well to monitor groundwater levels and quality. TCE has never been detected in groundwater samples collected from MCAS-10.

In recent years, OCWD staff observed that the well's purge rate during sampling had decreased appreciably, groundwater levels drew down significantly, and it took an inordinate amount of time to recover before a sample could be collected. Down-hole videos showed that the mild steel well casing was heavily corroded and impacted by chemical and biological encrustation. An attempt by OCWD staff to redevelop the well was unsuccessful.

Based on the age, materials of construction, and field observations, staff concluded that the well had reached the end of its useful life and should be properly destroyed and sealed. Navy staff agreed with our recommendation for destruction, and a replacement well is not currently proposed.

In July 2023, the Board authorized destruction of monitoring wells AM-29A and MCAS-10. The Notice Inviting Bids for Contract GBM-2024-1 was issued on February 20, 2024. In April 2024, the Board awarded Contract GBM-2024-1 to BC2. The work was completed by BC2 in July and early August 2024.

Table 1 below summarizes the approved budget and expenditures. Expenditures match the lump sum bid amount and the project has been completed within the approved budget.

Table 1: Monitoring Wells AM-29A and MCAS-10 Destruction Budget and Expenditures

Task	Approved Budget	Expenditures
AM-29A Destruction	$ 22,000	$ 10,750
MCAS-10 Destruction	23,000	16,750
Destruction Inspection Services[1]	0	0
PROJECT TOTAL:	**$ 45,000**	**$ 27,500**

[1]Inspection services were completed in-house by an OCWD geologist.

PRIOR RELEVANT BOARD ACTIONS

4/17/24, R24-4-36 Award Contract GBM-2024-1 Destruction of Monitoring Wells AM-29A and MCAS-10 to BC2 Environmental, LLC.

7/19/23, R23-7-90 Authorize destruction of monitoring wells AM-29A and MCAS-10.

1/6/99, R99-1-1 Accept and authorize execution of Agreement with OCTA for transfer of responsibility for monitoring well MW-1 (renamed AM-29A).

2/22/89, R88-2-22 Accept proposal and authorize issuance of purchase order to Beylik Drilling/Welenco for well testing services in connection with El Toro USMCAS TCE investigation.

Figure 1: AM-29A Location

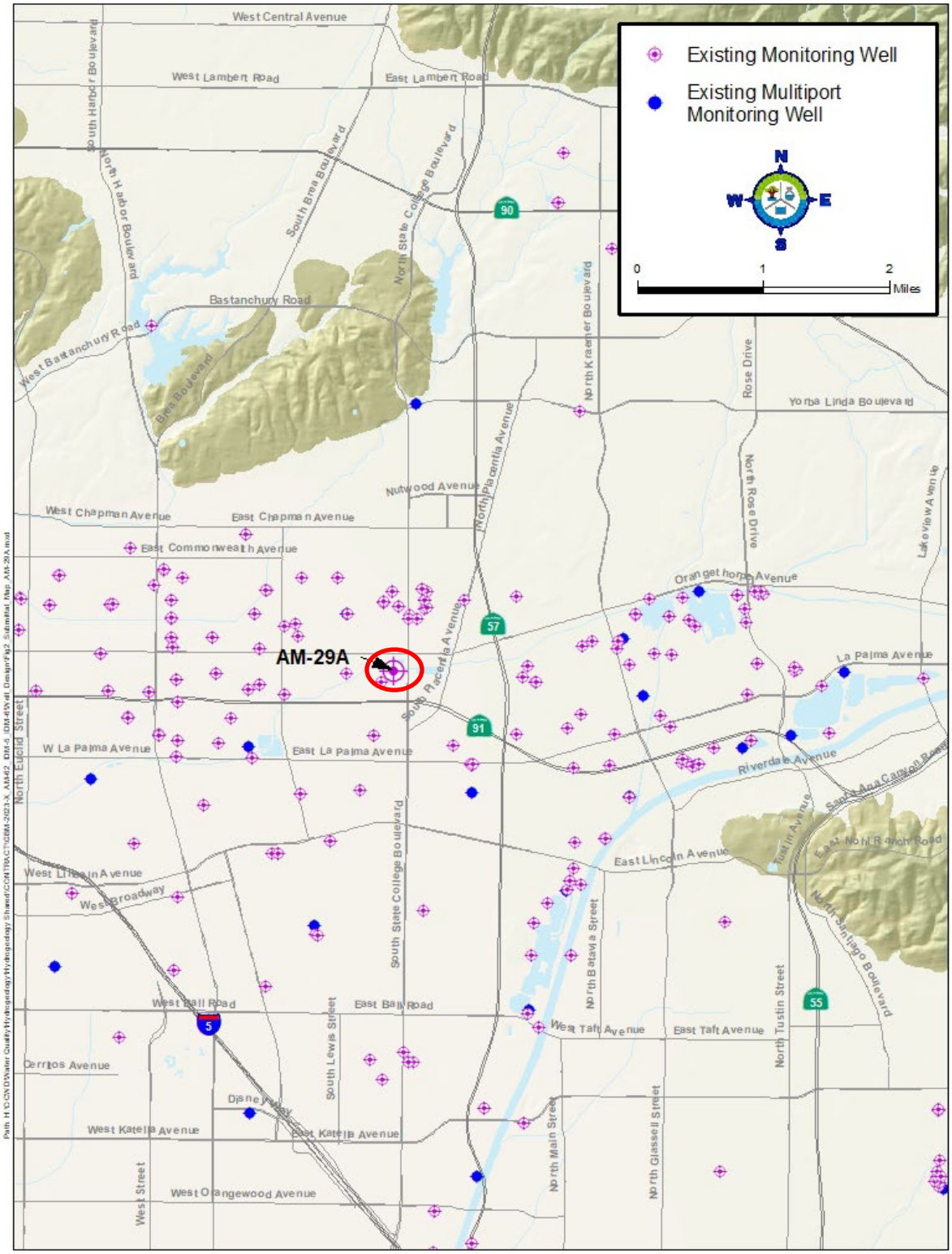
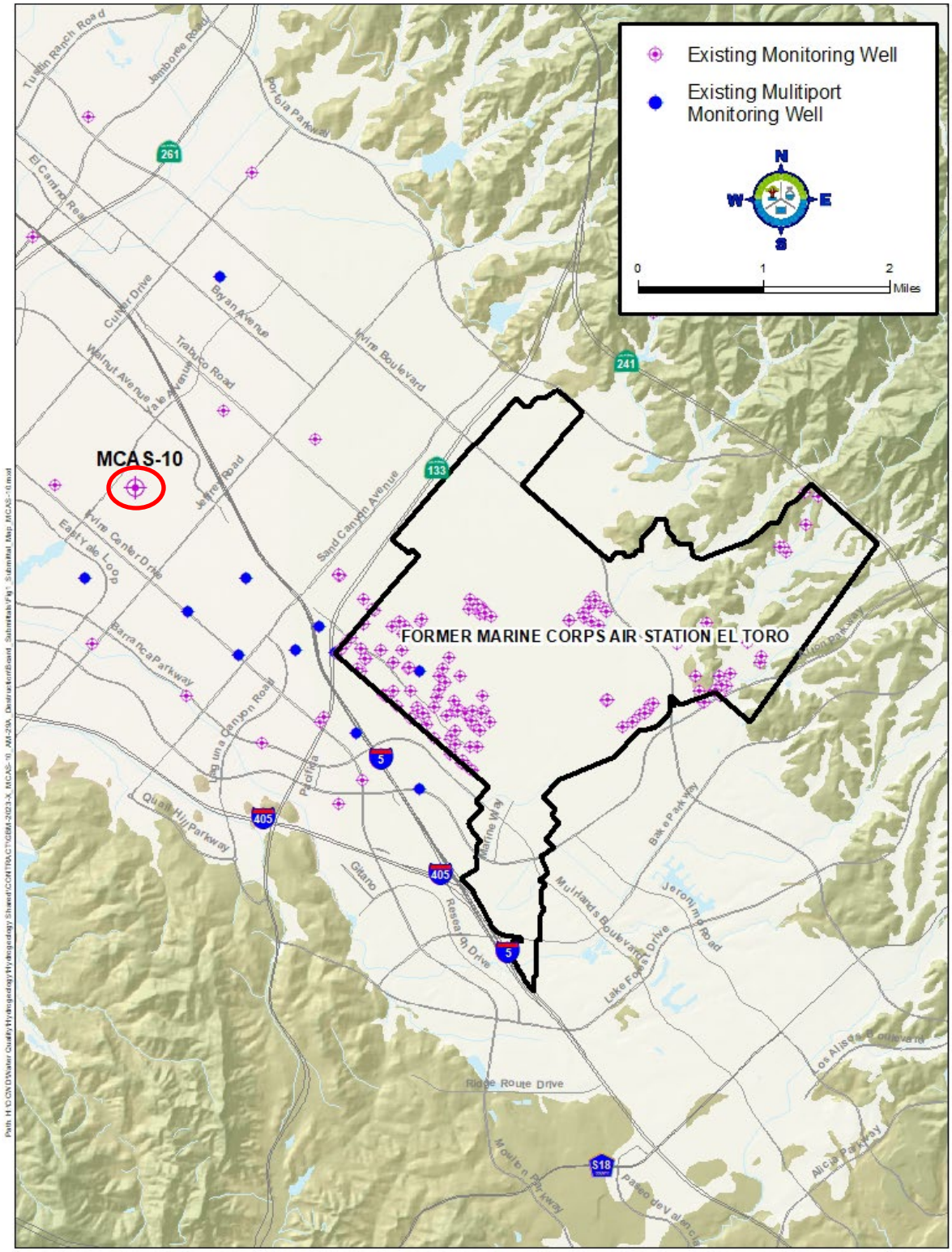


Figure 2: MCAS-10 Location



AGENDA ITEM SUBMITTAL

Meeting Date: September 11, 2024

To: Water Issues Committee
Board of Directors

From: John Kennedy

Staff Contact: C. Olsen/R. Bouley

Budgeted: Yes
Proposed Budget: $6,000,000
Cost Estimate: $6,000,000
Funding Source: CIP
Program/Line Item No.: C23005
General Counsel Approval: Yes
Engineers Report: Completed
CEQA Compliance: Cat. Ex.

Subject: CONTRACT NO. FUL-2024-1 FULLERTON WELL KIM 2 PFAS WATER TREATMENT PLANT ENGINEER'S REPORT, CATEGORICAL EXEMPTION, AND NOTICE INVITING BIDS

SUMMARY

The final plans and specifications for the City of Fullerton Well Kim 2 PFAS Water Treatment Plant (Kim 2) are complete. Staff recommends filing a Categorical Exemption for the project and issuing a Notice Inviting Bids for the construction contract.

Attachment: Engineer's Report for the City of Fullerton Wells Kim 2 and Sunclipse 10 PFAS Water Treatment Plant Project.

RECOMMENDATION

Agendize for September 18 Board meeting:

1. Approve the Engineer's Report for the city of Fullerton Wells Kim 2 and Sunclipse 10 PFAS Water Treatment Plant Project and determine the project feasible, necessary and beneficial to the lands of the District;

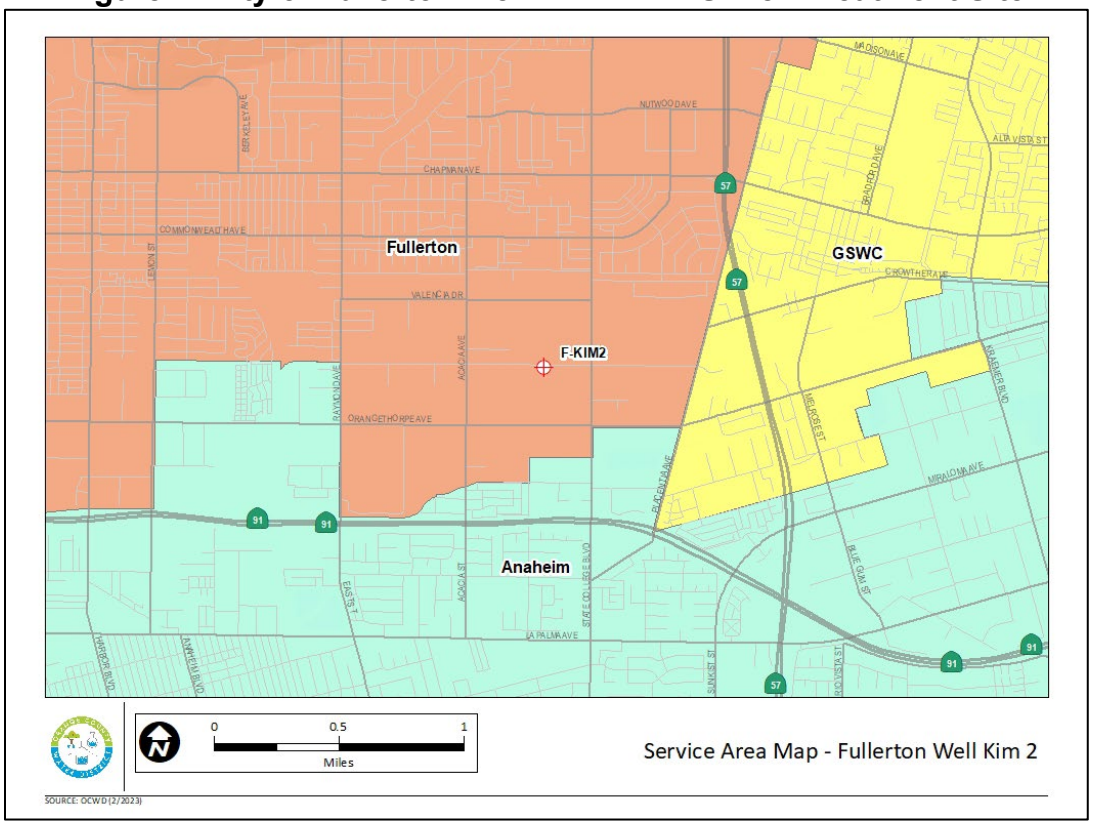
2. Authorize filing of a Categorical Exemption for the Fullerton Well Kim 2 PFAS Water Treatment Plant project in compliance with the California Environmental Quality Act (CEQA) guidelines; and

3. Authorize publication of Notice Inviting Bids for Contract No. FUL-2024-1, Fullerton Well Kim 2 PFAS Water Treatment Plant.

BACKGROUND/ANALYSIS

To restore the use of groundwater supplies impacted by PFAS contaminants with minimal delay, Tetra Tech began design of the Well Kim 2 PFAS treatment plant in June 2023. This treatment plant at the Kim 2 site will combine treatment for Kim 2 and Well Sunclipse 10. Due to site constraints at the Kim 2 site, Ion Exchange (IX) treatment has been selected as the treatment method. The number of vessels and required support systems needed for IX allows for less area to be occupied by the treatment plant than would be required for Granular Activated Carbon (GAC), Nanofiltration (NF), or Reverse Osmosis (RO). Without additional land acquisition, IX quickly became the treatment choice for this site. Figure 1 shows the location of Kim 2:

Figure 1: City of Fullerton Well Kim 2 PFAS Well Treatment Site



Tetra Tech has completed design of the PFAS treatment plant for Kim 2. Review of the Kim 2 treatment plant is underway at the State Division of Drinking Water (DDW) in preparation for issuance of an amendment to Fullerton's Domestic Water Supply Permit.

The City of Fullerton Kim 2 PFAS Treatment Plant Project will include installing IX vessel systems and all pre-filtration, site piping, well modifications, removal of the existing booster pumps and wet well, electrical upgrades, and other appurtenances. Staff has determined that the Well Kim 2 project is consistent with the Categorical Exemption for New Construction or Conversion of Small Structures (Class 3) because it consists of the construction and operation of a limited number of new, small facilities or structures. The expected project schedule is shown in Table 1.

Table 1: Fullerton Well Kim 2 PFAS Treatment Schedule Summary

Description	Date
Fullerton Well Kim 2	
Design	June 2023 – Aug 2024
DDW Permitting	Aug 2024 – April 2026
Construction Contract	Nov 2024 – April 2026

The Engineer's Report for the City of Fullerton Wells Kim 2 and Sunclipse 10 PFAS Water Treatment Plant Project has been written. Staff recommends approving the Engineer's Report, authorizing the filing of a Categorical Exemption and authorizing

Publication of the Notice Inviting Bids for Contract No. FUL-2024-1, Fullerton Well Kim 2 PFAS Water Treatment Plant.

PRIOR RELEVANT BOARD ACTION(S)

N/A

SEPTEMBER 4, 2024

ENGINEER'S REPORT

FOR

FULLERTON KIMBERLY WELL 2
AND
SUNCLIPSE WELL 10
PFAS WATER TREATMENT PLANT PROJECT

Prepared By:

Ryan Bouley, P.E.

September, 2024

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1.0 EXECUTIVE SUMMARY

The purpose of this Engineer's Report is for Orange County Water District (OCWD or District) and the City of Fullerton ("City") to evaluate the need, benefits, and cost of constructing a Per- and Polyfluoroalkyl Substances (PFAS) treatment system for the City's Kimberly Well 2 (KIM2) and Sunclipse Well 10 (Well 10) production wells, specifically to remove perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS).

In February 2020, the State Water Resources Control Board's Division of Drinking Water (DDW) issued revised drinking water response levels of 10 parts per trillion (ppt) for PFOA and 40 ppt for PFOS. DDW recommends that sources exceeding these limits be taken out of service, treated, or blended. Water produced from KIM2 and Well 10 have averaged 14.5 ppt and 14.4, respectively, for PFOA. When groundwater sources are taken out of service, their production is commonly replaced with more expensive imported water from the Metropolitan Water District of Southern California (MWD). The state has begun the process of developing enforceable maximum contaminant levels (MCLs) for PFOA and PFOS and currently anticipates these MCLs to be in effect by the Fall of 2024.

In 2019, the District hired Carollo to conduct a PFAS Planning Study to evaluate options for the treatment of groundwater wells that are potentially impacted by PFAS, including the City of Fullerton (City), and to develop preferred alternatives. The five alternatives evaluated in the Planning Study were shutting down the potentially impacted well and replacing the source with imported water, blending well water with imported water, blending well water with other groundwater, packing part of the well to avoid zones with PFAS, and engineered treatment. It was determined that engineered treatment, specifically ion exchange, would be the preferred treatment for KIM2 and Well 10. The District also hired Jacobs in 2019 to perform pilot testing and life-cycle cost analysis of various treatment technologies. Preliminary results from the Jacobs study confirm that ion-exchange is an efficient technology to remove PFAS.

This project will consist of installing three ion exchange vessel systems in a lead-lag configuration (a total of 6 vessels) including the necessary piping, prefilters and related appurtenances.

Benefits of constructing a PFAS Treatment System at KIM2 include:

- Allowing the City to continue to utilize its well and infrastructure investment.
- Allowing the City to maintain a diversified water supply portfolio with a substantial local supply component.
- Saving the OCWD service territory millions of dollars in water supply costs.
- Saving OCWD over $1,376,320 per year by paying for the treatment plant instead of losing RA revenue.
- Avoiding millions of dollars of imported water costs incurred by the City by utilizing groundwater instead of imported water.

In November 2019, the District adopted a PFAS policy to design and construct the lowest reasonable cost but efficient treatment system to remove PFOS and PFOA compounds for Groundwater Producers, such as the City of Fullerton. Additionally, the policy states that OCWD will provide a 50 percent subsidy for future operation and maintenance expenses up to $75 per acre-foot.

The current estimated capital cost of this project is $15,832,000. The current estimated Operation and Maintenance cost is $184 per acre-foot per year, to be split between OCWD and the City of Fullerton. These costs will be adjusted as the engineering details are finalized and construction is completed.

2.0 BACKGROUND

In 2009, the United States Environmental Protection Agency (EPA) established a provisional health advisory of 400 ppt for PFOA and 200 ppt for PFOS to assess the potential risk for short-term exposure through drinking water. The EPA later established MCLs 4 ppt for PFOA and PFOS and 10 ppt for PFNA, PFHxS, and HFPO-DA (Gen X).

In March 2019, the DDW issued mandatory PFAS testing orders to 12 public water systems (Groundwater Producers) in the District's service area, including the City of Fullerton. Dozens of wells in the District's service area had water quality testing results exceeding the DDW Notification Levels. Affected Producers were required to provide governing body notifications for exceedances of the Notification Level. Later in 2019, DDW lowered the Notification Limits to 5.1 ppt for PFOA and to 6.5 ppt for PFOS. In February 2020 DDW lowered the Response Levels to 10 ppt for PFOA and 40 ppt for PFOS. The state has begun the process of developing enforceable maximum contaminant levels (MCLs) for PFOA and PFOS.

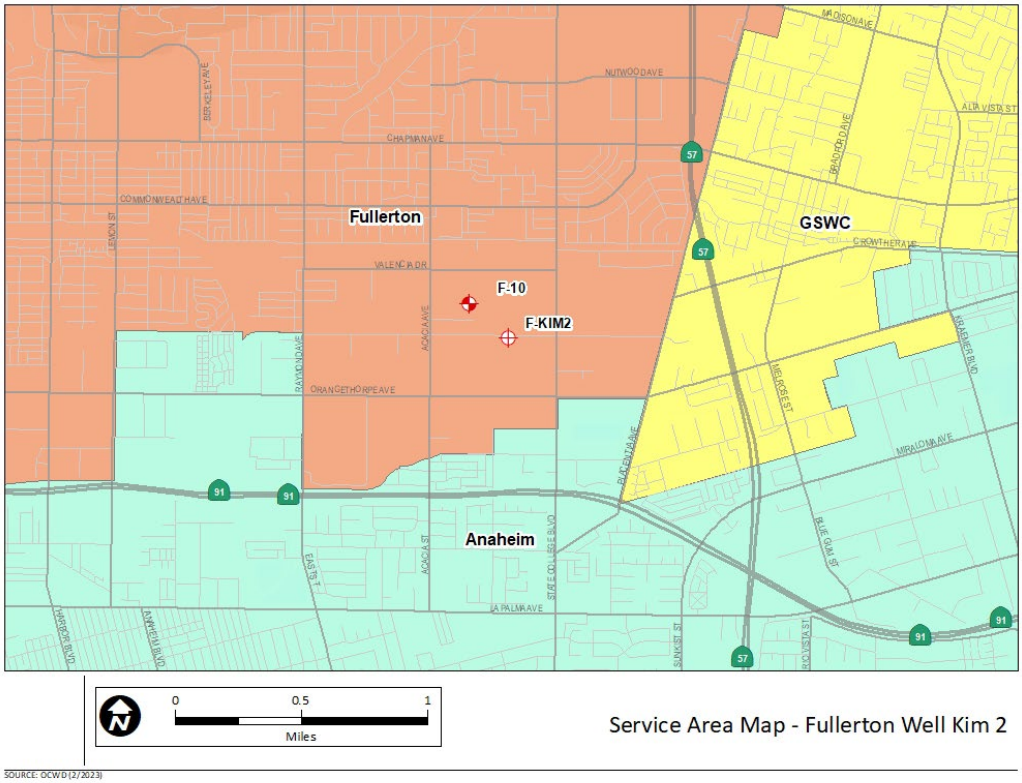
In preparation for the impacts of PFAS to groundwater supplies, the District adopted a PFAS policy in November 2019. Among other items, the policy states that OCWD will fund the lowest reasonable and efficient treatment system design and construction costs to remove PFAS compounds for Groundwater Producers. Additionally, the policy states that OCWD will provide a 50 percent subsidy for operation and maintenance expenses up to $75 per acre-foot.

In early 2020, the District entered into agreements to pre-purchase treatment vessels that can be used for either Granular Activated Carbon (GAC) or Ion Exchange (IX). The vessels are long lead-time items, so purchasing them prior to finalizing design and issuance of construction contracts will allow the PFAS treatment systems to start operating much sooner. The shorter timeline will reduce regional PFAS related costs because lower cost groundwater supplies will be put back into service sooner, thereby reducing expenses for higher cost imported water supplies.

The City of Fullerton wells currently under consideration for PFAS treatment systems are shown in Figure 1. Five alternatives to address PFAS at these wells were evaluated in the Carollo planning study:

1) shutting down the potentially impacted well and replacing the source with imported water,
2) blending well water with imported water,
3) blending well water with other groundwater,
4) packing part of the well to avoid zones with PFAS, and
5) engineered treatment.

Figure 1: Vicinity Map



Engineered treatment, specifically IX, was found to be the preferred and efficient treatment for KIM2 and Well 10 due to site area limitations. The number of vessels and support systems required for IX allows for less area to be occupied by the treatment plant than would be required for Granular Activated Carbon (GAC), and IX would be more cost-effective than Nanofiltration (NF) or Reverse Osmosis (RO). RO is a treatment technology that ensures high reliability for PFAS removal but would generate a liquid waste stream containing PFAS and would be more expensive than the other technologies. Additionally, a RO plant would likely require additional City staff with the appropriate water treatment certifications to operate. Although RO would be the most effective option for long-term removal of PFAS, the costs associated with RO make IX the most feasible treatment choice for combined treatment at the KIM2 site at this time.

3.0 PROJECT PURPOSE AND DESCRIPTION

3.1 Project Purpose

The purpose of this project is to design, permit, construct, and operate a PFAS removal system for the KIM2 and Well 10 wells, in accordance with the District PFAS policy. The proposed IX treatment system is to remove PFOA and PFOS to less than 2 ppt (the current non-detect limit). Use of this PFAS removal treatment system will ensure the groundwater supplied by well KIM2 and Well 10 can be served to the City of Fullerton in compliance with current PFAS regulations.

3.2 Site Location

The proposed treatment system will be located at 2200 Kimberly Avenue in the City of Fullerton. The land is owned by the City of Fullerton and currently houses the KIM2 well and discharge piping, communication equipment, electrical equipment, and storm drainage piping. The site is surrounded by industrial land uses and fronts Kimberly Avenue.

3.3 Project Components

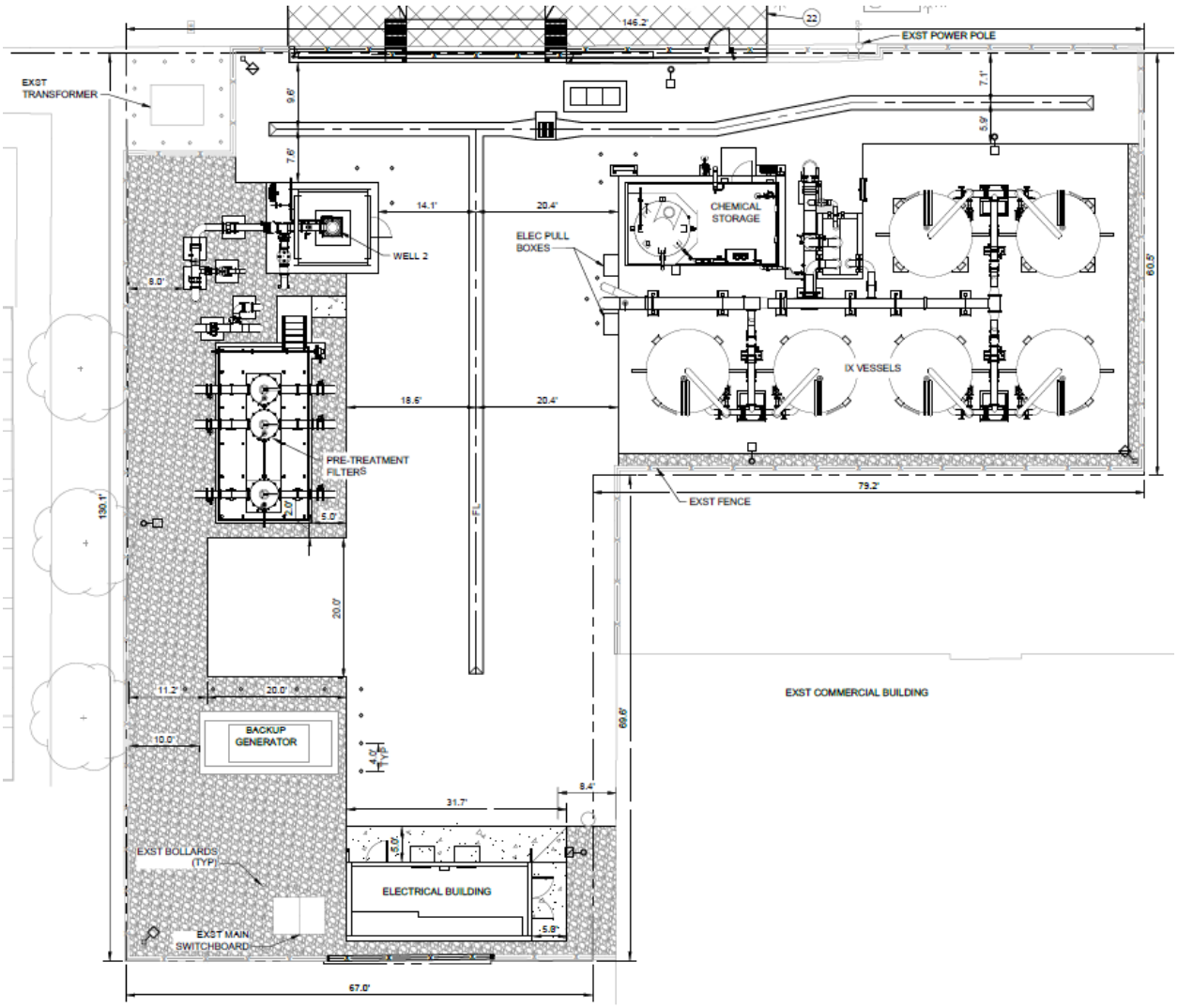
The PFAS treatment plant will be sized to treat a well discharge flow of 4,800 gallons per minute (gpm). Six IX vessels will be used in lead-lag configuration as three trains (or systems), see Figure 2. The IX vessels are expected to be provided by Evoqua and measure approximately 16-feet tall by 12-feet wide. The influent and effluent supply pipelines can be operated in a way to switch which vessel is the lead and lag position by controlling valves. The lead-lag arrangement is beneficial because once the PFAS constituents reach a predetermined threshold the lead vessel's effluent, then the lead vessel can be switched to the lag. The new lead vessel houses fresh IX resin. Replacement of the IX media is performed after the spent resin is placed into lag service. Sample ports are located at several positions in the vessel so that resin performance can be monitored.

Prior to the water entering the IX vessels, it first passes through a pre-filtration system. Since IX media should not be backwashed, its lifespan would be greatly reduced if solids loading were to occur. It is proposed to use 5-micron bag-filters prior to the IX vessels to catch solids that may be discharged by the well.

The existing disinfection system used at KIM2 must be replaced to facilitate treatment of Well 10 at the KIM2 site. It is proposed to be located adjacent to the IX vessels near the effluent pipeline.

Electrical and telemetry systems will be integrated into the treatment plant to convey information into the City's existing SCADA system. Flow rates, pressure differential, and flood alarms are included in the list of proposed instrumentation.

Figure 2: Conceptual KIM2 and Well 10 Treatment System Site Plan



The existing wells' combined design discharge is 4,000 gpm. Well KIM2 discharges to a wet well prior to discharge to distribution. Well 10 discharges directly to distribution With the implementation of the PFAS treatment plant, Well 10 will be piped to KIM2, and the combined Well 10 and KIM2 flows will discharge directly to the distribution system. Both wells will need to produce water at higher pressure. Therefore, the wells' pumps will be upsized to maintain the existing flowrate while allowing for direct flow to distribution.

3.4 Permits and Regulatory Issues

The City of Fullerton's drinking water system operates under a DDW permit that would need to be amended for the proposed combined KIM2 and Well 10 PFAS treatment system. The permit amendment is not officially granted until after the system is constructed and proven to meet the required water quality criteria.

Several permits will be required from the City of Fullerton:

- A right of entry permit will be required to grant the District and its consultants control of the site during construction.
- Encroachment, public works, building, and grading permits will be required to construct the treatment system and appurtenances.

In accordance with the California Environmental Quality Act (CEQA) guidelines, it is proposed to file a Categorical Exemption for the project. The project is consistent with the Categorical Exemption for New Construction or Conversion of Small Structures (Class 3) because it consists of the construction and operation of a limited numbers of new, small facilities or structures.

4.0 FINANCIAL ANALYSIS

4.1 Construction Cost Estimates

The estimated construction cost for the IX project is $12,360,000, as detailed in Table 1.

Table 1 – IX Construction Cost Estimate

Description	Quantity	Units	Unit Cost ($/unit)	Cost ($)
Mobilization	1	LS	$435,000	$435,000
General Conditions	1	LS	$185,000	$185,000
Pre-Filtration System	1	LS	$700,000	$700,000
Pre-Purchased Vessel Systems	3	LS	$420,000	$1,260,000
IX Systems (appurtenances, install)	1	LS	$1,715,000	$1,715,000
IX Resin (840 cubic feet)	1	LS	$920,000	$920,000
Yard Piping	1	LS	$2,260,000	$2,260,000
Site Work	1	LS	$835,000	$835,000
Well Pump Upsizing	1	LS	$1,360,000	$1,360,000
Electrical and Communication	1	LS	$2,690,000	$2,690,000
			Total =	**$12,360,000**

A construction cost estimate for a Reverse Osmosis system is detailed in Table 2.

Table 2 – RO Construction Cost Estimate

Description	Quantity	Units	Unit Cost ($/unit)	Cost ($)
Mobilization	1	LS	$200,000	$200,000
General Conditions	1	LS	$1,000,000	$1,000,000
Pre-Filtration System	1	LS	$150,000	$150,000
RO Treatment Systems & Pumps	1	LS	$3,200,000	$3,200,000
RO Membranes	1	LS	$700,000	$700,000
Chemical Storage	1	LS	$150,000	$150,000
Sewer Connection & Fees	1	LS	$800,000	$800,000
Yard Piping & Mechanical	1	LS	$6,800,000	$6,800,000
Building	1	LS	$1,500,000	$1,500,000
Site Work	1	LS	$1,800,000	$1,800,000
Electrical and Communication	1	LS	$4,050,000	$4,050,000
			Total =	**$20,350,000**

4.2 Capital Cost Estimate

The estimated total capital cost for the IX project is $15,832,000, as shown in Table 3. The estimated total capital cost for a RO treatment plant is $25,920,000 as shown in the same table. The table includes the cost of constructing the site improvements for the

PFAS treatment system, engineering services for design and construction phases, construction management and the cost associated with meeting regulatory requirements.

Table 3 - Capital Cost Estimate		
Item	**IX Cost**	**RO Cost**
Engineering, Permitting, & CEQA	$1,000,000	$1,500,000
Construction	$12,360,000	$20,350,000
Contingency (~20%)	$2,472,000	$4,070,000
Total =	**$15,832,000**	**$25,920,000**

4.3 Annual Operation and Maintenance Cost Estimate

The estimated annual Operation and Maintenance (O&M) cost for the IX project is $687,000 per year, as detailed in Table 4. It conservatively assumes that visual inspection will be performed daily, and analytical testing will be performed by an outside entity instead of OCWD.

The five-year average of annual production from KIM2 and Well 10 is approximately 3,740 acre-feet. Using this value results in a unit O&M cost of $184 per acre-foot. Per the District's PFAS policy, the O&M costs will be split between OCWD and the City of Fullerton with OCWD's portion being no larger than $75 per acre-foot. The estimated $184 per acre-foot O&M unit cost would be cause OCWD to incur $75 per acre-foot and the City to incur $109 per acre-foot.

Table 4 - Annual IX O&M Cost Estimate				
Description	**Quantity**	**Units**	**Unit Cost ($/unit)**	**Cost ($)**
Power	12	Month	$18,000	$216,000
Labor	1	Year	$120,000	$120,000
Maintenance	1	Year	$90,000	$90,000
Analytical Testing	12	Month	$3,000	$36,000
Media Replacement	1	Year	$225,000	$225,000
			Total =	**$687,000**

Table 5 shows an itemized breakdown of O&M cost for a RO treatment plant. Using an annual volume of 3,740 acre-feet, the RO O&M unit cost is estimated to be $301 per acre-foot.

Table 5 - Annual RO O&M Cost Estimate				
Description	**Quantity**	**Units**	**Unit Cost ($/unit)**	**Cost ($)**
Power	12	Month	$31,000	$372,000
Chemicals	12	Month	$17,000	$204,000
Labor	1	Year	$170,000	$170,000
Maintenance	1	Year	$205,000	$205,000
Analytical Testing	12	Month	$3,200	$38,400
Brine Disposal	12	Month	$1,300	$15,600
Membrane Replacement	1	Year	$120,000	$120,000
			Total =	**$1,125,000**

4.4 Ion-Exchange Cost Comparisons

Three methods to evaluate the economic effectiveness of the IX project are presented below. All three methods indicate that there is a financial benefit to move forward with this project.

1) OCWD Service Territory Perspective - The total project cost of providing water to the OCWD service territory via treated groundwater versus purchasing MWD imported water.
2) OCWD Perspective - The OCWD lost revenue due to no KIM2 or Well 10 groundwater production versus the OCWD cost to construct and operate the treatment plant.
3) City of Fullerton Perspective – The cost of providing treated groundwater versus purchasing MWD imported water.

Method 1: OCWD Service Territory Perspective

The unit cost for the City of Fullerton to acquire treated imported water through MWD will be $1,380 per acre-foot ($1,300 Tier I Full Service + $80 readiness to serve) on January 1, 2025. An annual volume of 3,740 acre-feet would cost $5,161,200.

If the capital cost is amortized over 30 years at a 4% interest rate, the annual payment for the PFAS treatment plant would be $916,300, or $245 per acre-foot for 3,740 acre-feet. The well power cost to pump groundwater averages $110 per acre-foot. The PFAS treatment system's O&M expense is estimated to be $184 per acre-foot. As shown in Table 6, the total unit cost of the treated groundwater would be $485 per acre-foot, or $2,014,700 per year for 3,740 acre-feet. Note that the Replenishment Assessment (RA) is not considered in this calculation because it would be both paid and received by agencies within the OCWD Service Territory.

Implementation of the PFAS treatment system at KIM2 is estimated to save the OCWD service territory $3,146,500 per year in water supply costs.

Table 6 – OCWD Service Territory Perspective					
Groundwater			**MWD Import**		
Description	**Annual Cost**	**Unit Cost ($/AF)**	**Description**	**Annual Cost**	**Unit Cost ($/AF)**
Project Capital	$916,300	$245	Tier 1 Full Service	$4,862,000	$1,300
Project O&M	$687,000	$184	Readiness to Serve	$299,200	$80
Well Power	$411,400	$110			
Total	$2,014,700	$485	Total	$5,161,200	$1,380

Method 2: OCWD Perspective

Taking the KIM2 and Well 10 wells out of service would reduce the RA payments made by the City of Fullerton to OCWD. This assumes that other City of Fullerton wells are not available to pump the volume, which is currently the case. At an annual volume of 3,740 acre-feet and the current RA of $688 per acre-foot, OCWD would lose a revenue of $2,573,120.

The District's expenses to construct the PFAS treatment plant at KIM2 include the capital expense and half of the O&M. As previously discussed, the amortized unit capital expense is $245 per acre-foot and OCWD's portion of the estimated O&M expense is $75 per acre-foot. The resulting unit cost of constructing and operating the PFAS plant at KIM2 would be $320 per acre foot, or $1,196,800 per year using 3,740 acre-feet per year.

Implementation of the PFAS treatment system at KIM2 is estimated to save OCWD $1,376,320 per year by constructing and operating the treatment plant instead of losing RA revenue.

Table 7 – OCWD Perspective					
Project Cost			**Lost Revenue**		
Description	**Annual Cost**	**Unit Cost ($/AF)**	**Description**	**Annual Cost**	**Unit Cost ($/AF)**
Project Capital	$916,300	$245	Replenishment Assessment	$2,573,120	$688
Project O&M	$280,500	$75			
Total	$1,196,800	$320	Total	$2,573,120	$688

Method 3: City of Fullerton Perspective

Given the need for the City of Fullerton to acquire water supplies to meet the demands of its customers, it is faced with a situation to utilize the PFAS treatment system or to purchase MWD imported water. As previously discussed, the cost to the City to

purchase 3,740 acre-feet of MWD water would be $5,161,200 per year, or $1,380 per acre-foot.

The costs for the City of Fullerton to produce groundwater from KIM2 and Well 10 and operate the PFAS treatment plant include payment of the RA ($688 per acre-foot), their portion of the O&M expenses ($109 per acre-foot), and well power costs ($110 per acre-foot). The total unit cost would be $907 per acre-foot, or $3,392,180 per year for 3,740 acre-feet.

Table 8 – City of Fullerton Perspective

Groundwater			MWD Import		
Description	**Annual Cost**	**Unit Cost ($/AF)**	**Description**	**Annual Cost**	**Unit Cost ($/AF)**
Replenishment Assessment	$2,573,120	$688	Tier 1 Full Service	$4,862,000	$1,300
Project O&M	$407,660	$109	Readiness to Serve	$299,200	$80
Well Power	$411,400	$110			
Total	$3,392,180	$907	Total	$5,161,200	$1,380

Implementation of the PFAS treatment system at KIM2 is estimated to save the City of Fullerton $1,769,020 per year by utilizing groundwater instead of MWD imported water.

4.5 Reverse Osmosis versus Ion Exchange Unit Cost

RO would provide a more robust, comprehensive, and reliable treatment for long-term removal of PFAS. However, the capital and operating cost of the RO treatment system are more expensive. If the estimated RO capital cost of $25.9 million is amortized over 30 years at a 4% interest rate, the annual payment for the RO PFAS treatment plant would be $1,499,740, or $401 per acre-foot for 3,740 acre-feet. The RO PFAS treatment system's O&M expense is estimated to be $301 per acre-foot for 3,740 acre-feet. As shown in Table 9, the total unit cost of the RO treated groundwater would be $702 per acre-foot, or $2,625,480 per year for 3,740 acre-feet. The IX project costs are also summarized in the same table.

4.6 Table 9 – Reverse Osmosis versus Ion Exchange Unit Cost

IX			RO		
Description	**Annual Cost**	**Unit Cost ($/AF)**	**Description**	**Annual Cost**	**Unit Cost ($/AF)**
Project Capital	$916,300	$245	Project Capital	$1,499,740	$401
Project O&M	$687,000	$184	Project O&M	$1,125,740	$301
Total	$1,603,300	$429	Total	$2,625,480	$702

5.0 CONCLUSIONS AND RECOMMENDATIONS

Constructing the proposed IX PFAS Treatment System at Fullerton's KIM2 well will:

- Allow the City to continue to utilize its well and infrastructure investment.
- Allow the City to maintain a diversified water supply portfolio with a substantial local supply component.
- Save the OCWD service territory approximately $3,146,500 per year in water supply costs.
- Save OCWD approximately $1,376,320 per year by paying for the treatment plant instead of losing RA revenue.
- Save the City of Fullerton approximately $1,769,020 per year by utilizing groundwater instead of imported water.

Given the financial benefits to the OCWD service territory, OCWD, and the City of Fullerton to utilize a less expensive treated groundwater supply instead of MWD water, it is recommended that OCWD proceed with PFAS Treatment System Project for the KIM2 and Well 10 wells. Additionally, the City would be able to continue using their well investment and maintain their local water component of their supply portfolio.

6.0 PROPOSED IMPLEMENTATION SCHEDULE (TENTATIVE)

Date	Activity
September 2024	Authorize Notice Inviting Bids
October 2024	Advertise for construction bids
November 2024	Award construction contract
April 2026	Completion of construction

7.0 REFERENCES

Carollo, *PFAS Treatment Systems Planning Study – City of Fullerton*, 2020

AGENDA ITEM SUBMITTAL

Meeting Date: September 11, 2024

To: Water Issues Committee
Board of Directors

From: John Kennedy

Staff Contact: Herndon/Sovich/Neel

Budgeted: N/A
Budgeted Amount: N/A
Cost Estimate: N/A
Funding Source: N/A
Program/Line Item No.: N/A
General Counsel Approval: N/A
Engineers/Feasibility Report: N/A
CEQA Compliance: N/A

Subject: BASIN STORAGE UPDATE FOR WATER YEAR 2023-24

SUMMARY

Staff evaluated water level conditions throughout the basin and constructed groundwater elevation contour maps representing the end of the water year. Using the "full basin" benchmark for all three aquifer layers in the basin, an accumulated overdraft of 133,000 acre-feet (AF) was calculated as of June 30, 2024. Thus, the basin experienced an annual storage increase of 56,000 AF for water year (WY) 2023-24. A brief description of the water level change and accumulated overdraft calculation will be presented.

Attachment: Presentation

RECOMMENDATION

Informational

BACKGROUND/ANALYSIS

Following the methodology outlined in the March 2007 staff report entitled, "Evaluation of Orange County Groundwater Basin Storage and Operational Strategy," staff calculated the storage change and accumulated overdraft in the basin based on water levels in the three primary aquifer layers: Shallow, Principal, and Deep. Accumulated overdraft is essentially the volume of "empty basin storage" that is available to fill with groundwater.

Staff constructed groundwater elevation contour maps for each of the three aquifer layers in the basin. These hand-drawn contour maps representing end of June 2024 groundwater elevations were scanned and digitized into the District's GIS database and then used to calculate the accumulated overdraft from the full-basin condition and the annual change in storage for WY 2023-24 using the three-layer storage change methodology.

Findings

The calculated storage increased approximately 56,000 AF and resulted primarily from a moderate rise in groundwater levels throughout most of the basin from June 2023 to June 2024, partially offset by a groundwater level decline of 5-25 feet in the immediate vicinity of the OCWD Anaheim and Santiago Basins recharge facilities. In the Shallow aquifer,

groundwater levels rose approximately 10-15 feet in the greater Anaheim/Fullerton Forebay area (west of the OCWD spreading grounds), 5-10 feet in the central portion of the basin, and 0-4 feet in the Irvine and coastal areas including the Talbert Gap, where elevations remained at or above protective elevations for seawater intrusion control.

In the Principal aquifer, except for the aforementioned decline surrounding the recharge basins, groundwater levels rose approximately 5-10 feet in the greater Anaheim/Fullerton Forebay area, and 5-15 feet throughout the Pressure area, including 5 feet near the IRWD Dyer Road Well Field. Principal aquifer groundwater levels increased 10-20 feet in the northeastern portion of the Irvine Sub-basin near the Santa Ana Mountains but decreased 10-20 feet in south-central Irvine.

In the Deep aquifer, groundwater levels decreased less than 5 feet near the Anaheim recharge basins and 5-15 feet at Santiago Basins but rose throughout the rest of the basin.

Since the Shallow aquifer in the Forebay area (generally north of the 5 Freeway) behaves as an unconfined water table aquifer, the majority of the storage change in the basin typically occurs due to the rise and fall of this uppermost Shallow aquifer water table. Sediments in this area are largely comprised of coarse sands and gravels. Although over 90% of basin pumping typically comes from the Principal aquifer, the majority of pumped groundwater originates from the Shallow aquifer, which in turn is replenished by the District's recharge activities at the Forebay spreading grounds.

During WY 2023-24, the Shallow aquifer exhibited an estimated storage increase of 51,000 AF, primarily due to applied recharge from both the SAR and GWRS water in the Anaheim Forebay. Due to the confined or pressurized conditions in the Principal and Deep aquifers, their groundwater level increases led to a combined storage increase of 5,000 AF, as shown in the following table:

Aquifer	WY 2023-24 Storage Change (AF)
Shallow	+51,000
Principal	+4,000
Deep	+1,000
Total:	**+56,000**

The total storage increase of 56,000 AF during WY 2023-24 represents the second consecutive year of significant increase and was more than originally budgeted due to above-average rainfall.

During WY 2023-24, 20.95 inches of rain fell at the District's field headquarters in Anaheim, 56% above the 37-year average of 13.47 inches. The estimated incidental recharge of 28,300 AF (Table 1) was significantly below expectations based on the historical estimates of incidental recharge. Incidental recharge is an estimated term in the basin water budget and incorporates all unmeasured inflows and outflows to and from the basin (e.g., outflow to Los Angeles County and inflow from/outflow to the ocean). While rainfall is a key factor affecting incidental recharge, other factors include the relative basin conditions between

Orange and Los Angeles counties as well as barrier operations and coastal groundwater elevations relative to sea level. For these reasons, the correlation between rainfall and incidental recharge is weak. During WY 2023-24, measured SAR storm flow recharge was approximately 25,000 AF higher than predicted by the historical best-ft trend line with 23 inches of San Bernardino rainfall. The increased SAR storm flow recharge resulted from less losses to the ocean due to the following factors:

- The distribution and intensity of rainfall events during the year was generally conducive to capture and percolation: In August 2023, tropical storm Hillary led to 11,000 AF of SAR storm flow recharged without any loss to the ocean; the winter storm period extended from February to May 2024, and storms were spaced at approximately one to two weeks apart.

- Prado Dam water storage was held above 505 ft elevation at times during the storm season, allowing Forebay operations to percolate SAR storm flow that would have otherwise been lost to the ocean.

Groundwater pumping was as budgeted at 280,400 AF, which was about 15% higher than the previous water year due to the increased BPP and PFAS treatment systems continuing to come on-line. No basin replenishment water was purchased from MWD during WY 2023-24.

Table 1 shows a comparison of budgeted versus actual inflows and outflows to and from the basin for WY 2023-24. The budgeted values were developed prior to commencement of the water year based on an assumption of average rainfall conditions.

Table 1. Groundwater Budget for Water Year 2023-24: Budgeted vs. Actual

Inflows & Outflows (acre-feet)	Original Budget (Avg. Rain ~13 in.)	Actual (Rain 20.95 in.)
SAR Base and Storm Flow Recharge	127,000	199,400(1)
Incidental Recharge	56,000	28,300
GWRS (Forebay, Barrier, and Mid-Basin)	134,000	106,600
MWD Replenishment Water Purchases	0	0
Other (Alamitos Barrier, Talbert OC-44)	3,000	2,100
Total Water into Basin	320,000	336,400
Total Basin Pumping @ 85% BPP	-280,000	-280,400
Storage Change	+40,000	+56,000
Accumulated Overdraft	148,000	133,000

(1) Includes 2,768 AF of percolation from prior year's carryover storage in recharge basins and 31,323 AF of Santiago Creek and other local inflows.

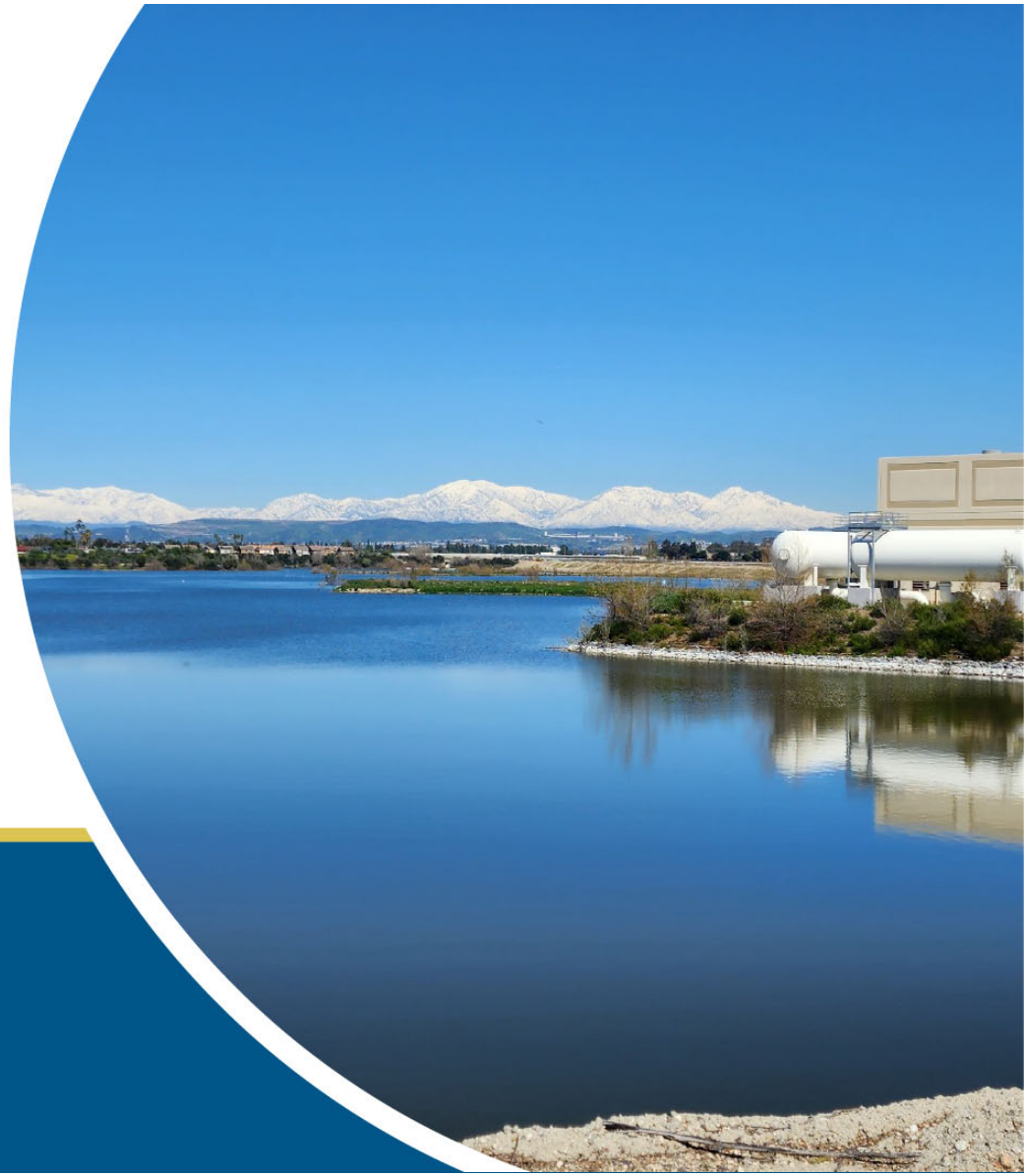
Notable variations in the original versus actual water budget include:

- 72,400 AF more recharge from the SAR/Santiago Creek than budgeted (wet year);
- 27,700 AF less incidental recharge than budgeted; and
- 27,400 AF less GWRS recharge than budgeted due to: (1) Kraemer-Miller Basins used for storm flow recharge and reduced percolation and injection from high basin conditions, and (2) extended periods of reduced GWRS influent flows due to OC San maintenance and repairs.

PRIOR RELEVANT BOARD ACTION

3/21/07 M07-44 Receive and file staff report, titled “Evaluation of Orange County Groundwater Basin Storage and Operational Strategy,” and adopt new three-layer storage change methodology with the associated new full basin condition.

Basin Storage Update
Water Year 2023-24

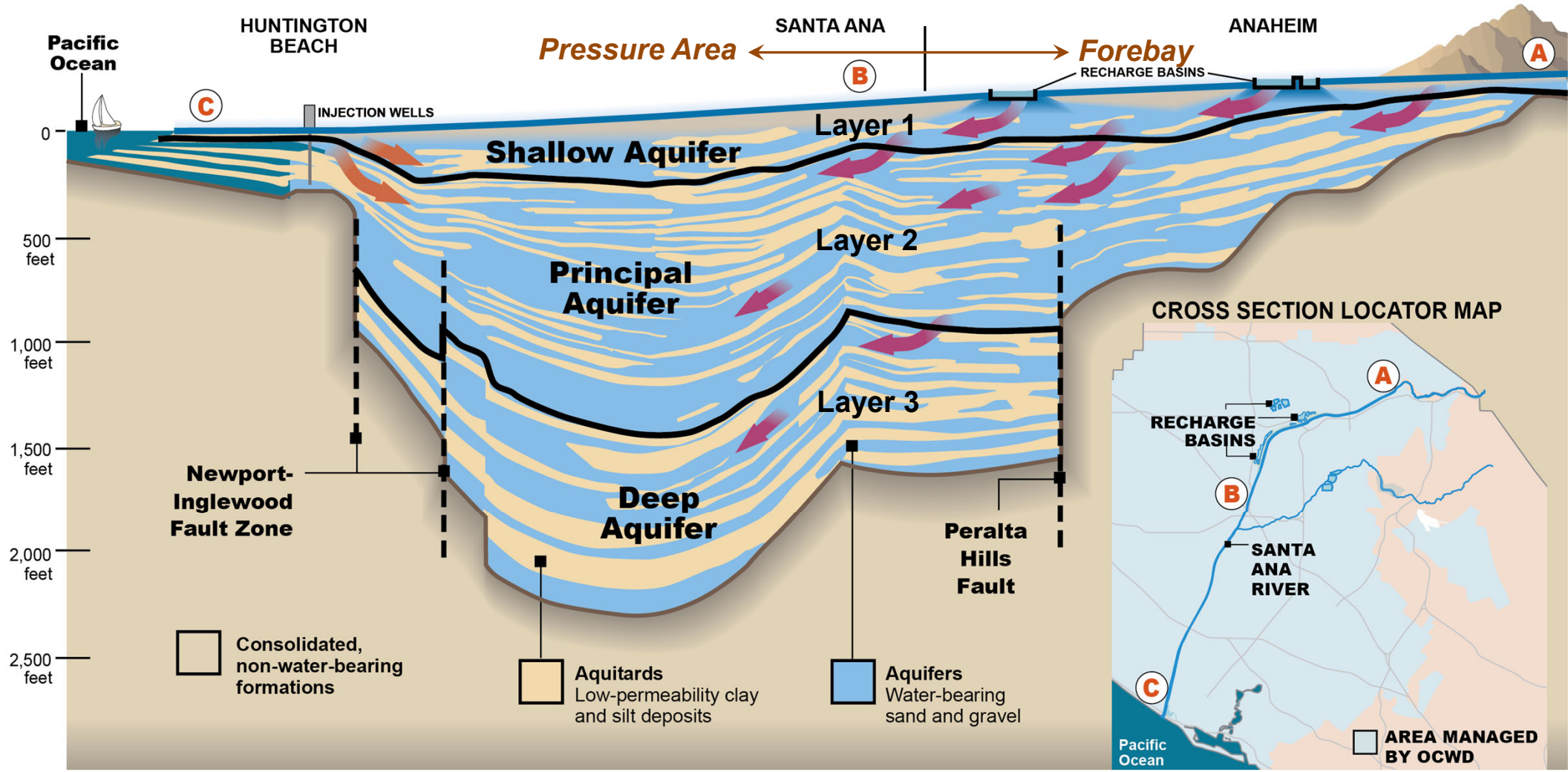


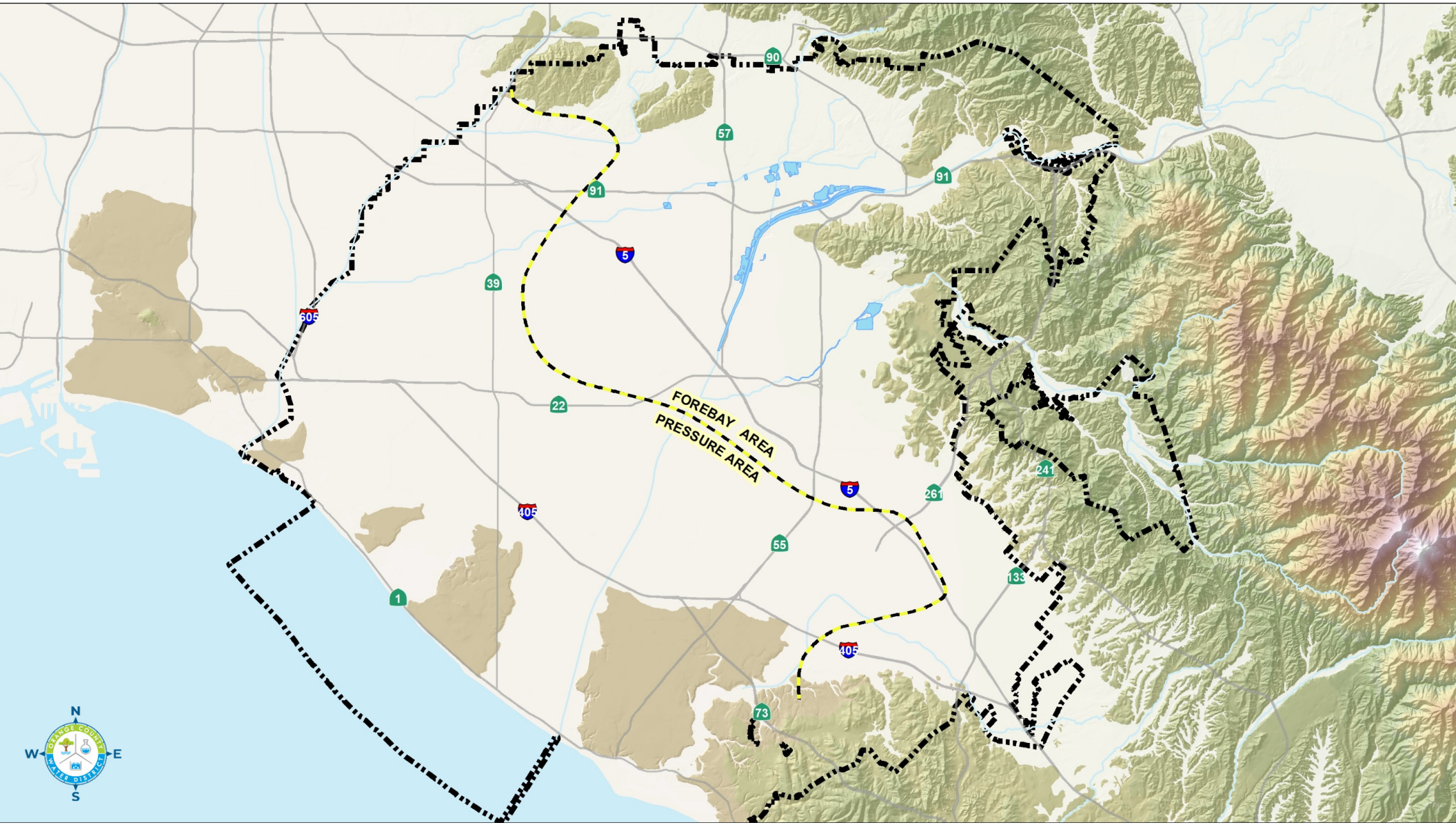
Water Issues Committee
September 11, 2024

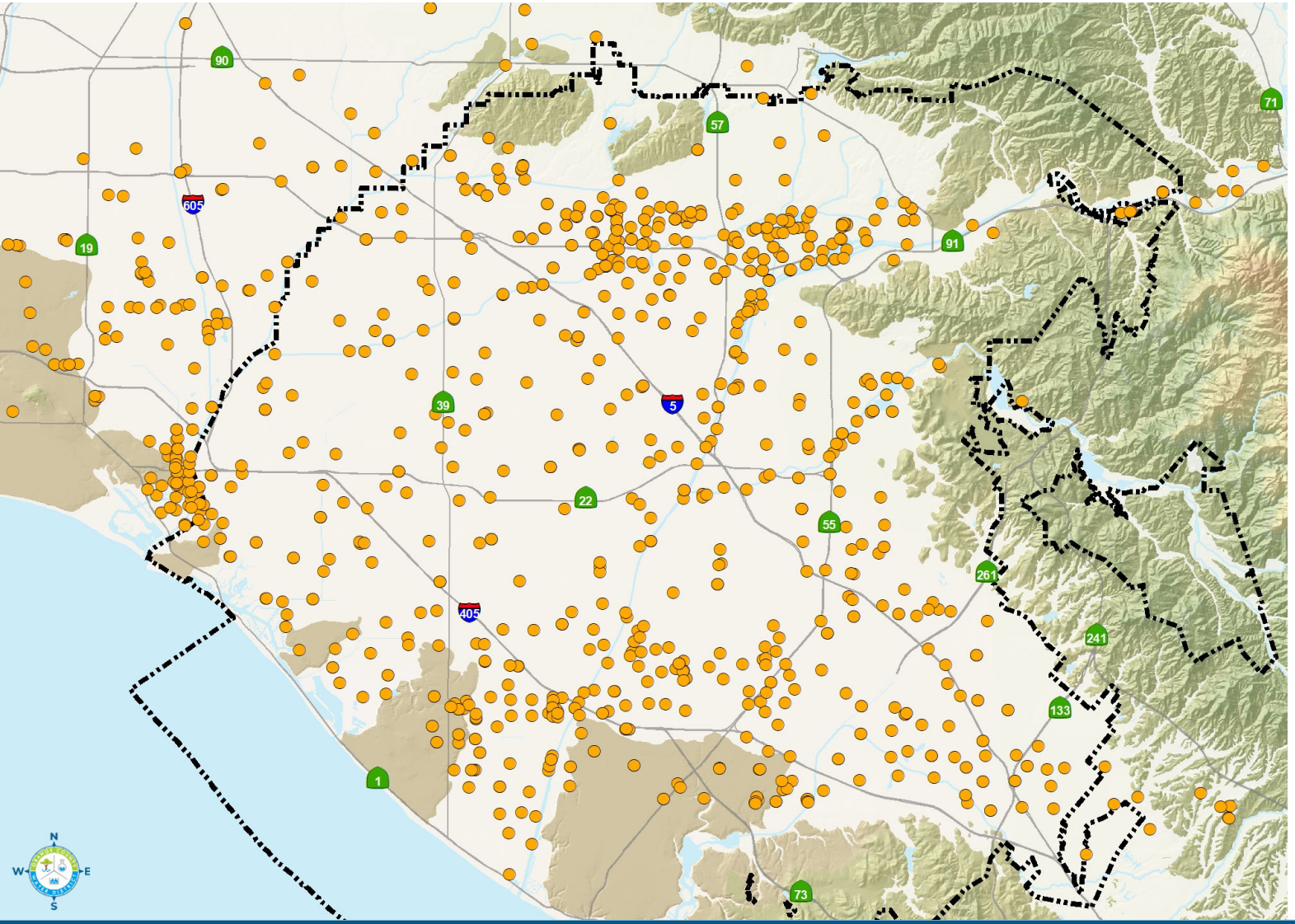
WY 2023-24 Highlights

- Recharge 72,400 AF more than budgeted from SAR
  - 20.95 inches of rainfall at FHQ (~1.5x the 37-year average)
  - Favorable distribution & intensity of rainfall events
  - Prado conservation pool at or above 505 ft for periods
- Incidental recharge 27,700 AF less than budgeted
  - Lower IR and higher storm flow recharge since 2018
- GWRS recharge 27,400 AF less than budgeted
  - Reduced recharge capacity from high basin conditions
  - Reduced GWRS influent from OC San maintenance/repairs

Storage change was calculated for the three aquifer layers in the basin.



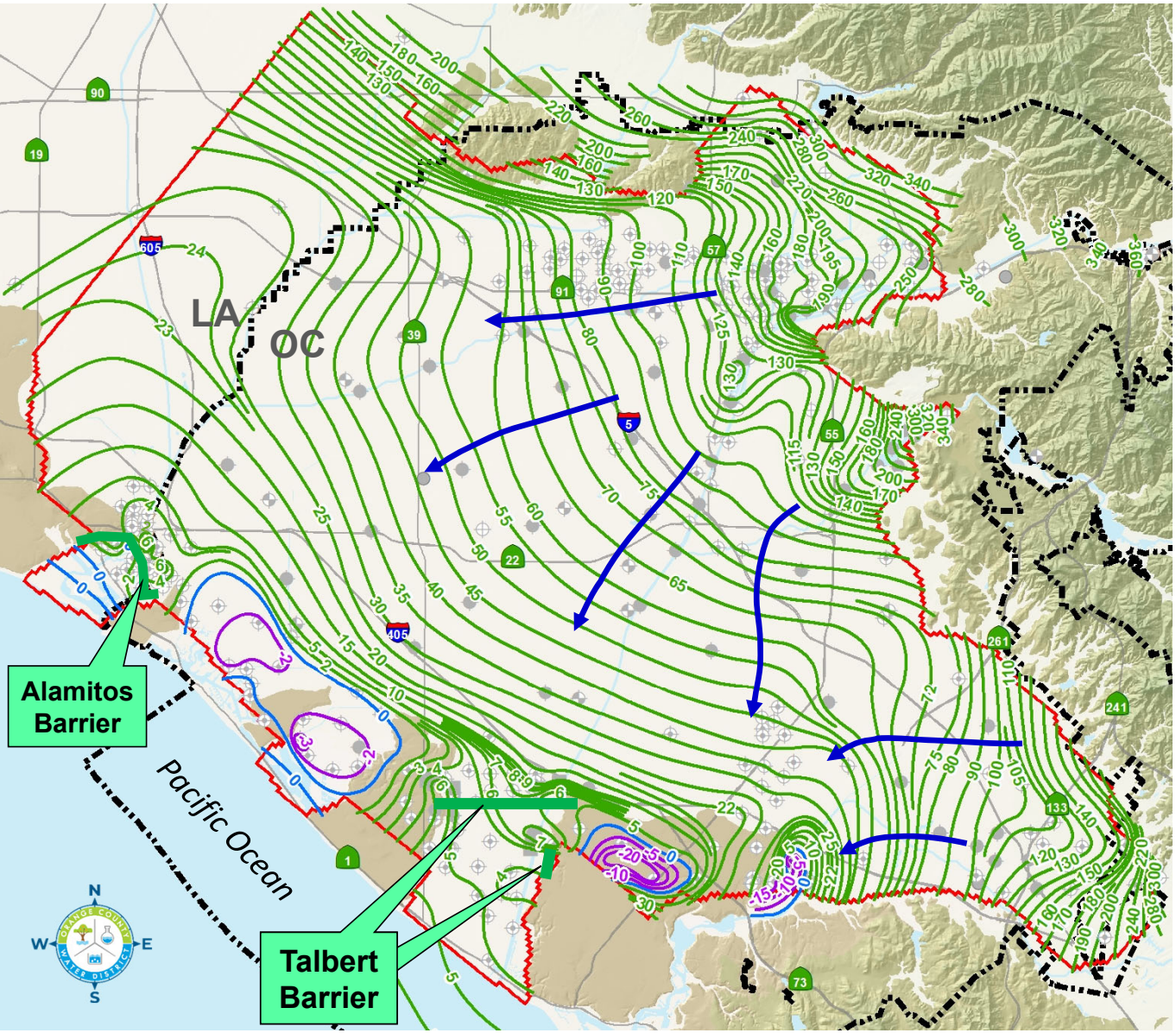

FOREBAY AREA
PRESSURE AREA
90
57
91
91
5
39
605
22
405
55
1
5
241
261
133
405
73
N
W
E
S



Several hundred water levels used for constructing groundwater contour maps…

Collaboratively measured near June 30:

- OCWD staff
- OC Producers
- LA Producers
- WRD

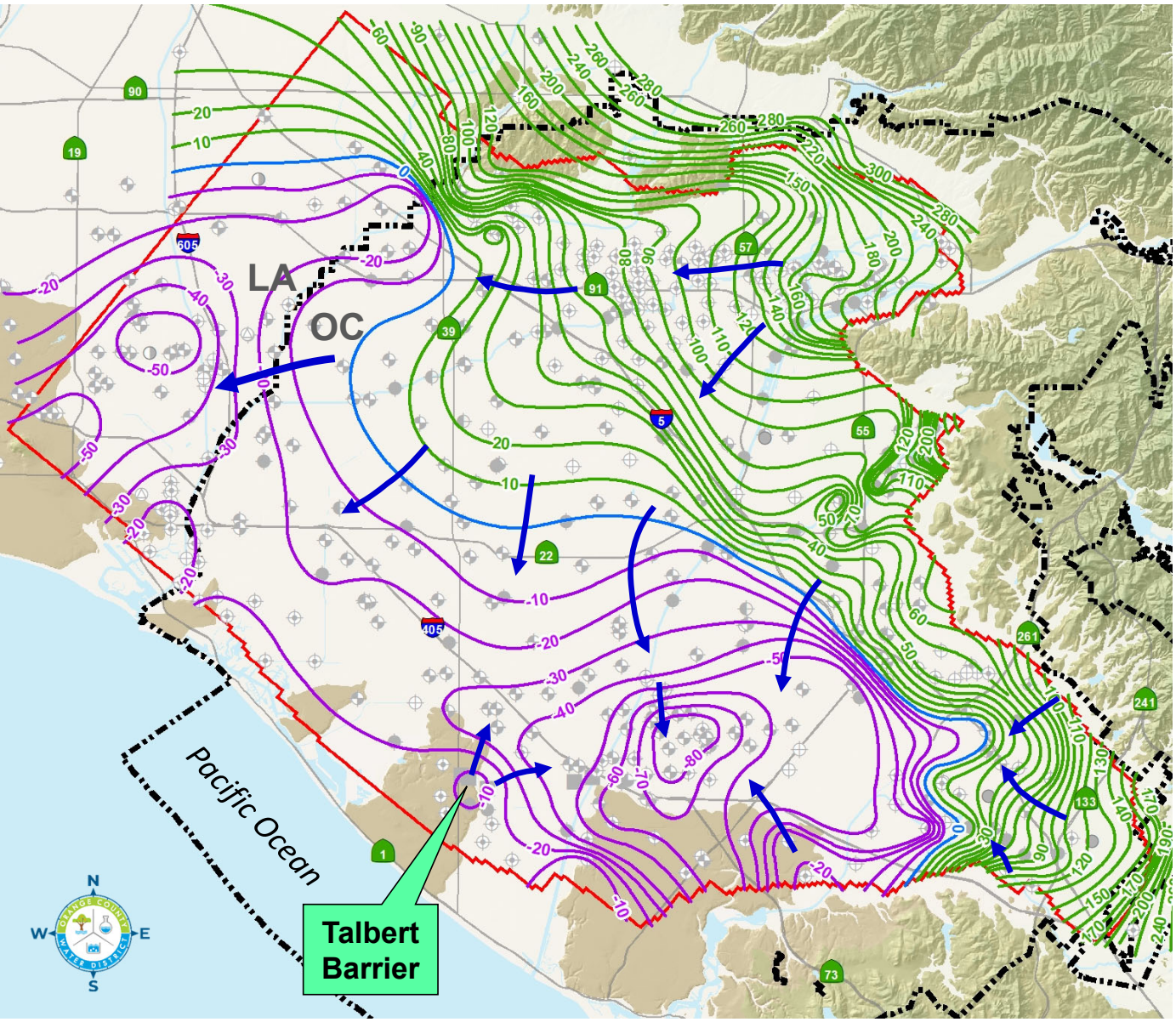


Shallow Aquifer Groundwater Elevations June 2024

Relatively smooth parallel contours since not much shallow pumping.

Groundwater flows to the SW from Forebay towards the coast.

Groundwater levels at or above protective elevations seaward of Talbert Barrier.

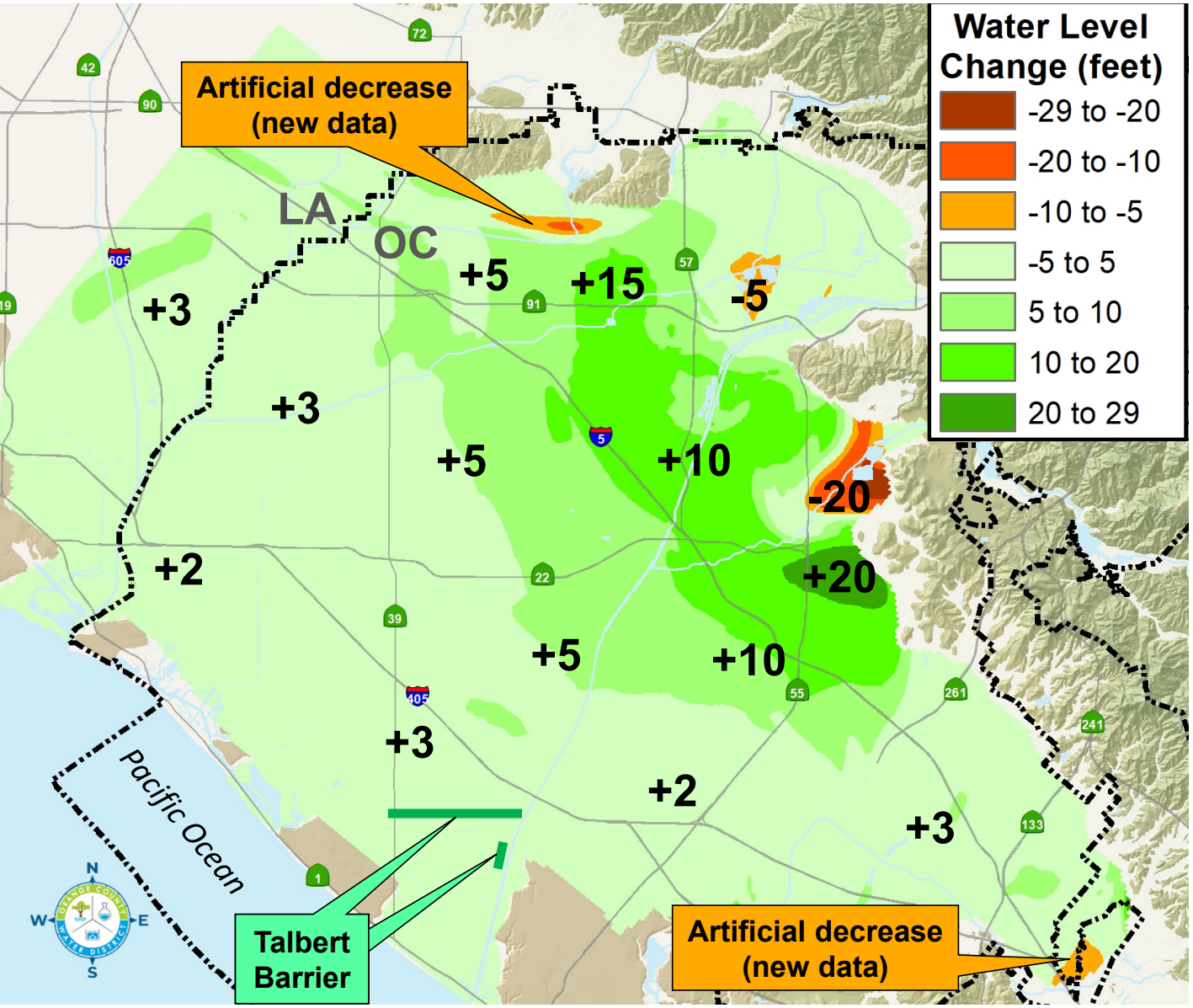


Principal Aquifer Groundwater Elevations June 2024

Groundwater flows from Forebay towards the coast and LA County

Steep hydraulic gradients and depressions below sea level due to pumping

Typical low point around IRWD DRWF and Mesa Water wells (-85 ft msl)



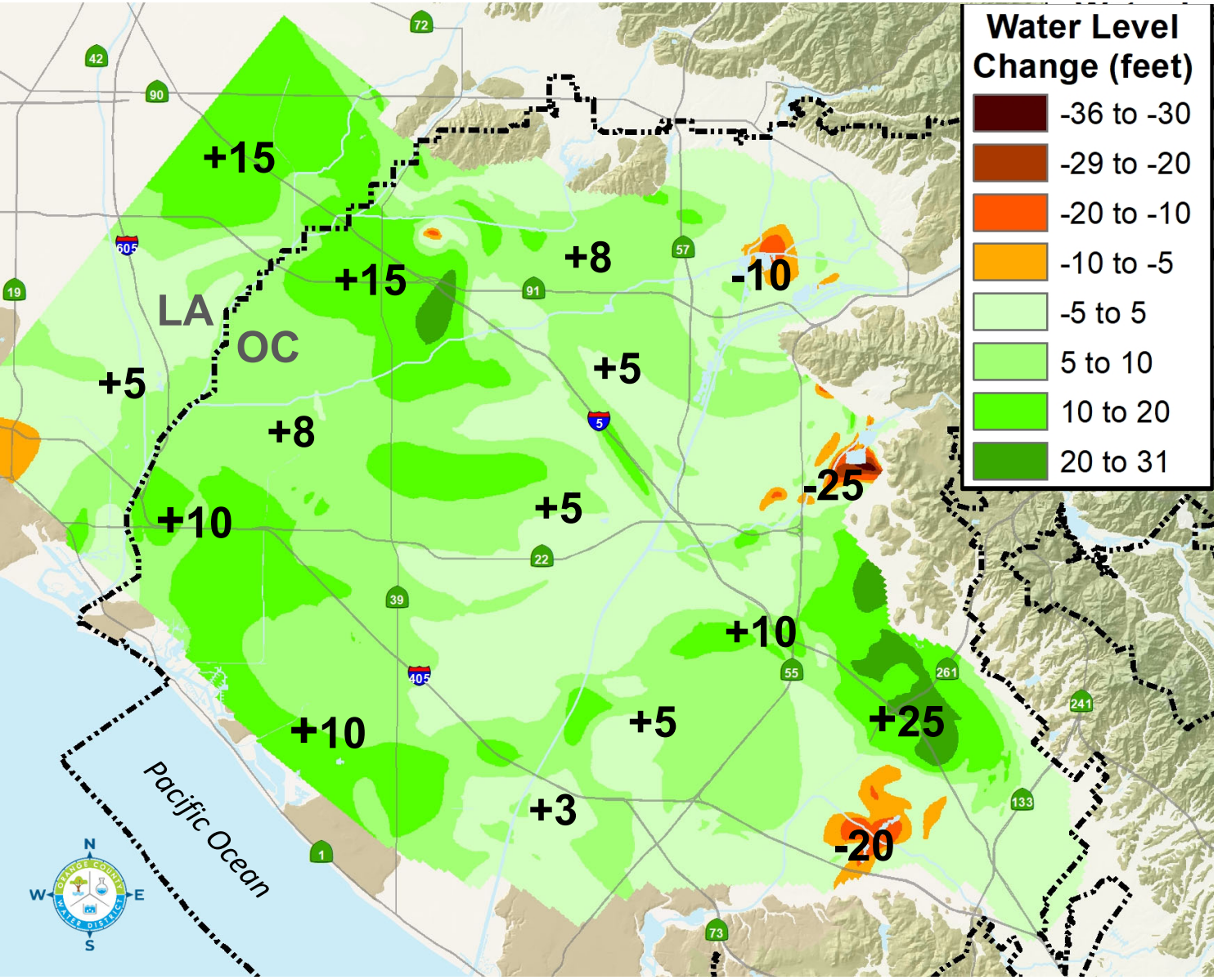
Shallow Aquifer Water Level Change

June 2023 to June 2024

Anaheim and Orange Recharge Basins: mild to moderate decrease

Greater Forebay area: mild to moderate increase

Pressure Area & Irvine: mild increase



Principal Aquifer Water Level Change

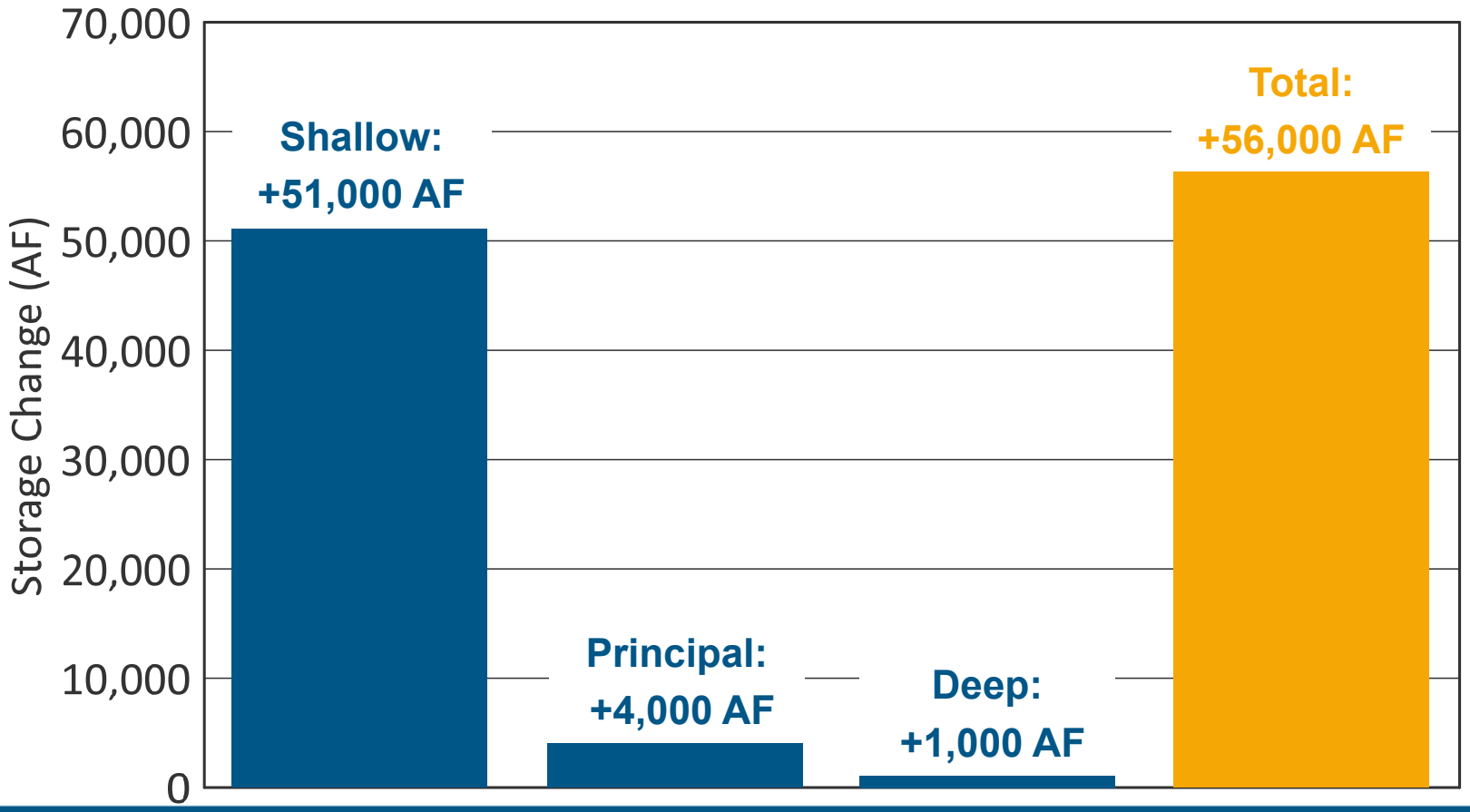
June 2023 to June 2024

Anaheim and Orange Recharge Basins: moderate decrease

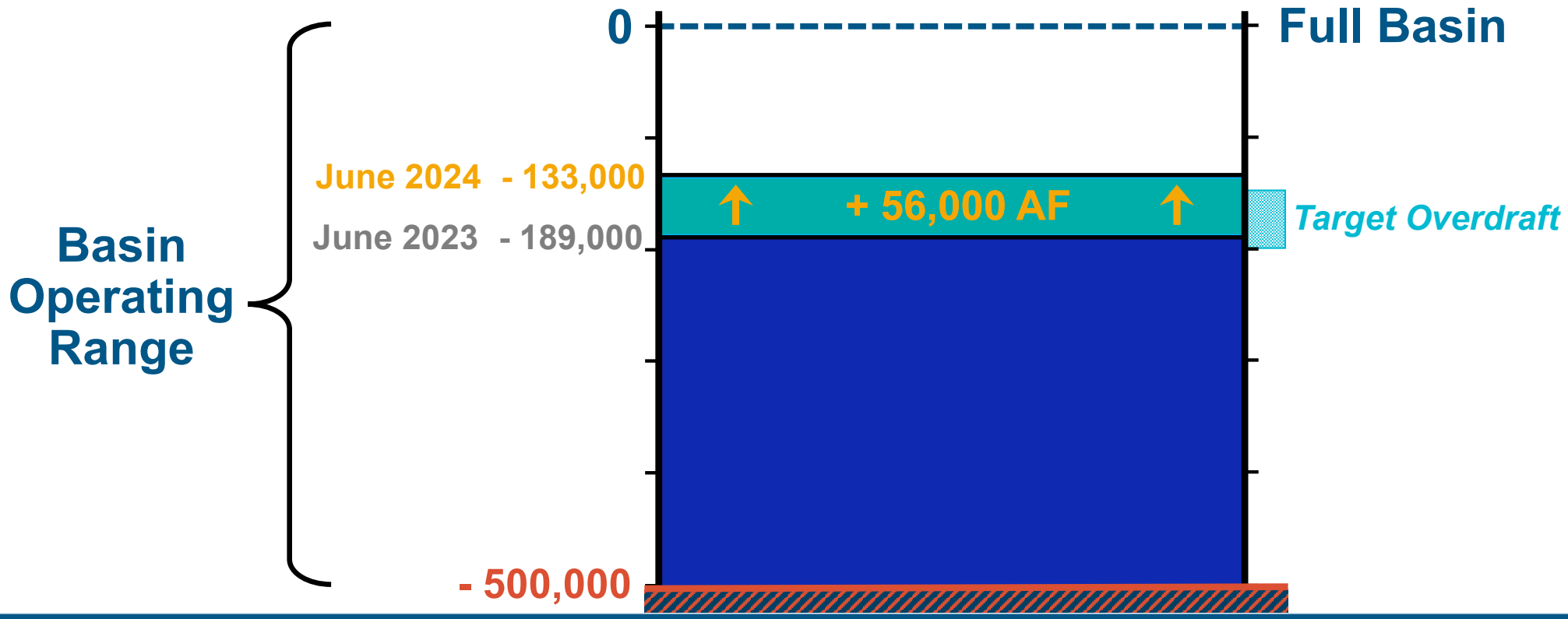
Greater Forebay and Pressure areas: mild to moderate increase

Irvine:
increase in north
decrease in south

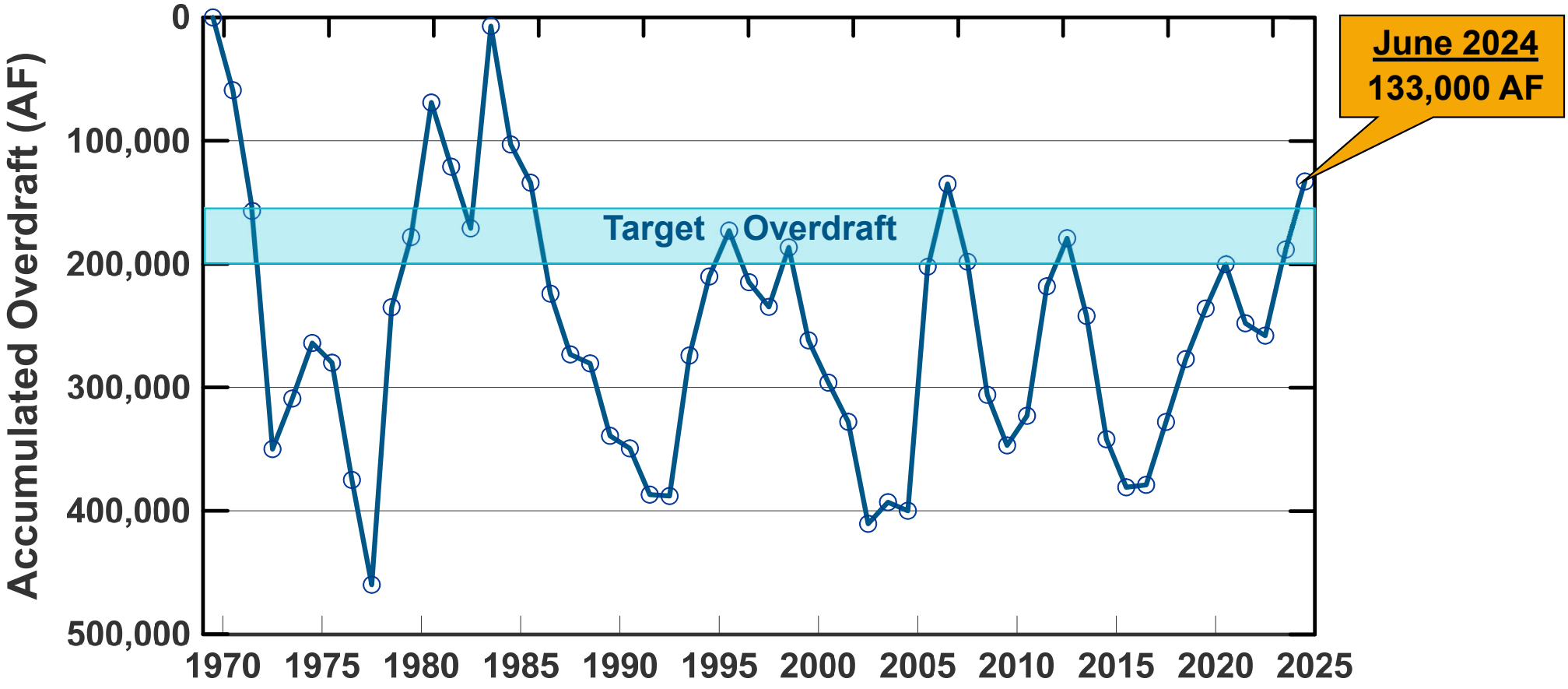
WY 2023-24 annual storage change was calculated for all three aquifer layers



Accumulated Overdraft for June 30, 2024: 133,000 AF below Full



Accumulated Overdraft Since 1969



WY 2023-24 Groundwater Balance

Inflows & Outflows (acre-feet)	Budget (Rain~13 in.)	Actual (Rain 20.95 in.)	Difference
SAR Base and Storm Flow Recharge	127,000	199,400	72,400
Incidental Recharge	56,000	28,300	-27,700
GWR System (Forebay, Barrier, and MBI)	134,000	106,600	-27,400
MWD Supplies	0	0	0
Other (Alamitos Barrier, Talbert OC-44)	3,000	2,100	-900
Total Water Into Basin	320,000	336,400	16,400
Total Basin Pumping @ 85% BPP	-280,000	-280,400	-400
Storage Change	+40,000	+56,000	
Accumulated Overdraft	148,000	133,000	

Thank You!

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